

What Is In The Dictionary ?

This workbook contains 157 worksheets, each explaining the purpose and usage of particular Excel functions.

There are also a number of sample worksheets which are simple models of common applications, such as Timesheet and Date Calculations.

Formatting

Each worksheet uses the same type of formatting to indicate the various types of entry.

North
100
100
100
300

Text headings are shown in grey.

Data is shown as purple text on a yellow background.

The results of Formula are shown as blue on yellow.

=SUM(C13:C15)

The formula used in the calculations is shown as blue text.

The Arial font is used exclusively throughout the workbook and should display correctly with any installation of Windows.

Each sheet has been designed to be as simple as possible, with no fancy macros to accomplish the desired result.

Printing

Each worksheet is set to print on to A4 portrait.

The printouts will have the column headings of A,B,C... and the row numbers 1,2,3... which will assist with the reading of the formula.

The ideal printer would be a laser set at 600dpi.

If you are using a dot matrix or inkjet, it may be worth switching off the colours before printing, as these will print as dark grey. (See the sheet dealing with Colour settings).

Protection

Each sheet is unprotected so that you will be able to change values and experiment with the calculations.

Macros

There are only a few very simple macros which are used by the various buttons to navigate through the sheets. These have been written very simply, and do not make any attempt to change your current Toolbars and Menus.

What Do The Buttons Do ?

View

View

This button will display the worksheet containing the function example.

1. Click on the function name, then
2. Click on the **View** button.

Sort

This button sorts the list of functions into alphabetical order.

Category
This describes the category the function is in.

Category

Click this button to sort alphabetically.

Location
This shows where the function is stored in Excel.

Location

Built-in indicates that the function is part of Excel itself.

Analysis ToolPak indicates the function is stored in the Analysis ToolPak add-in.

Click this button to sort alphabetically.

Using Different Monitor Settings

Each sheet has been designed to fit within the visible width of monitors with a low resolution of 640 x 480. This ensures that you do not need to scroll from left and right to see all the data.

The colours are best suited to monitors capable of 256 colours.
On monitors using just 16 colours the greys may look a bit rough!
You can switch colours off and on using the button below.

Colour On

This may take a few minutes on any computer !

Sample Colour Scheme

	North	South	East	West	Total
Alan	100	100	100	100	400
Bob	100	100	100	100	400
Carol	100	100	100	100	400
Total	300	300	300	300	1200

Analysis ToolPak

What Is The Analysis ToolPak ?

The Analysis ToolPak is an add-in file containing extra functions which are not built in to Excel. The functions cover areas such as Date and Mathematical operations.

The Analysis ToolPak must be added-in to Excel before these functions will be available.



Any formula using these functions without the ToolPak loaded will show the **#NAME** error.

Age Calculation	Sample	Sample	Using DATEDIF()
AutoSum shortcut key	Sample	Sample	Using Alt and =
Brackets in formula	Sample	Sample	Sample
FileName formula	Sample	Sample	Using MID() CELL() and FIND()
Instant Charts	Sample	Sample	Using F11
Ordering Stock	Sample	Sample	Stock Ordering
Percentages	Sample	Sample	How to calculate various percentages
Project Dates	Sample	Sample	Example using date calculation.
Show all formula	Sample	Sample	Using Ctrl and `
Split ForenameSurname	Sample	Sample	Using LEFT() RIGHT() FIND() SUBSTITUTE()
Time Calculation	Sample	Sample	How to calculate time.
TimeSheet For Flexi	Sample	Sample	Example flexi time sheet.
ABS	Mathematical	Built-in	Returns the absolute value of a number
AND	Logical	Built-in	Returns TRUE if all its arguments are TRUE
AVERAGE	Statistical	Built-in	Returns the average of its arguments
BIN2DEC	Engineering	Analysis ToolPak	Converts a binary number to decimal
c	Statistical	Built-in	Returns the correlation coefficient between two data sets
CEILING	Mathematical	Built-in	Rounds a number to the nearest integer or to the nearest multiple of significance
CELL	Information	Built-in	Returns information about the formatting, location, or contents of a cell
CHAR	Text	Built-in	Returns the character specified by the code number
CHOOSE	Lookup	Built-in	Chooses a value from a list of values
CLEAN	Text	Built-in	Removes all nonprintable characters from text
CODE	Text	Built-in	Returns a numeric code for the first character in a text string
COMBIN	Mathematical	Built-in	Returns the number of combinations for a given number of objects
CONCATENATE	Text	Built-in	Joins several text items into one text item
CONVERT	Engineering	Analysis ToolPak	Converts a number from one measurement system to another
COUNT	Statistical	Built-in	Counts how many numbers are in the list of arguments
COUNTA	Statistical	Built-in	Counts how many values are in the list of arguments
COUNTBLANK	Information	Built-in	Counts the number of blank cells within a range
COUNTIF	Mathematical	Built-in	Counts the number of nonblank cells within a range that meet the given criteria
DATE	Date	Built-in	Returns the serial number of a particular date
DATEDIF	Date	Built-in	Calculates the difference between two dates. Undocumented in v5/7/97
DATEVALUE	Date	Built-in	Converts a date in the form of text to a serial number
DAVERAGE	Database	Built-in	Returns the average of selected database entries
DAY	Date	Built-in	Converts a serial number to a day of the month
DAYS360	Date	Built-in	Calculates the number of days between two dates based on a 360-day year
DB	Financial	Built-in	Returns the depreciation of an asset for a specified period using the fixed-declining balance method
DCOUNT	Database	Built-in	Counts the cells that contain numbers in a database
DCOUNTA	Database	Built-in	Counts nonblank cells in a database
DEC2BIN	Engineering	Analysis ToolPak	Converts a decimal number to binary
DEC2HEX	Engineering	Analysis ToolPak	Converts a decimal number to hexadecimal
DELTA	Engineering	Analysis ToolPak	Tests whether two values are equal
DGET	Database	Built-in	Extracts from a database a single record that matches the specified criteria
DMAX	Database	Built-in	Returns the maximum value from selected database entries
DMIN	Database	Built-in	Returns the minimum value from selected database entries
DOLLAR	Text	Built-in	Converts a number to text, using currency format
DSUM	Database	Built-in	Adds the numbers in the field column of records in the database that match the criteria
EDATE	Date	Analysis ToolPak	Returns the serial number of the date that is the indicated number of months before or after the start date
EOMONTH	Date	Analysis ToolPak	Returns the serial number of the last day of the month before or after a specified date
ERROR.TYPE	Information	Built-in	Returns a number corresponding to an error type
EVEN	Mathematical	Built-in	Rounds a number up to the nearest even integer
EXACT	Text	Built-in	Checks to see if two text values are identical
FACT	Mathematical	Built-in	Returns the factorial of a number
FIND	Text	Built-in	Finds one text value within another (case-sensitive)
FIXED	Text	Built-in	Formats a number as text with a fixed number of decimals
FLOOR	Mathematical	Built-in	Rounds a number down, toward zero
FORECAST	Statistical	Built-in	Returns a value along a linear trend
FREQUENCY	Statistical	Built-in	Returns a frequency distribution as a vertical array
GCD	Mathematical	Analysis ToolPak	Returns the greatest common divisor
GESTEP	Engineering	Analysis ToolPak	Tests whether a number is greater than a threshold value
GROWTH	Statistical	Built-in	Returns values along an exponential trend
HEX2DEC	Engineering	Analysis ToolPak	Converts a hexadecimal number to decimal
HLOOKUP	Lookup	Built-in	Looks in the top row of an array and returns the value of the indicated cell
HOURL	Date	Built-in	Converts a serial number to an hour
IF	Logical	Built-in	Specifies a logical test to perform
INDEX	Lookup	Built-in	Uses an index to choose a value from a reference or array
INDIRECT	Lookup	Built-in	Returns a reference indicated by a text value

INFO	Information	Built-in	Returns information about the current operating environment
INT	Mathematical	Built-in	Rounds a number down to the nearest integer
ISBLANK	Information	Built-in	Returns TRUE if the value is blank
ISERR	Information	Built-in	Returns TRUE if the value is any error value except #N/A
ISERROR	Information	Built-in	Returns TRUE if the value is any error value
ISEVEN	Information	Analysis ToolPak	Returns TRUE if the number is even
ISLOGICAL	Information	Built-in	Returns TRUE if the value is a logical value
ISNA	Information	Built-in	Returns TRUE if the value is the #N/A error value
ISNONTEXT	Information	Built-in	Returns TRUE if the value is not text
ISNUMBER	Information	Built-in	Returns TRUE if the value is a number
ISODD	Information	Analysis ToolPak	Returns TRUE if the number is odd
ISREF	Information	Built-in	Returns TRUE if the value is a reference
ISTEXT	Information	Built-in	Returns TRUE if the value is text
LARGE	Statistical	Built-in	Returns the k-th largest value in a data set
LCM	Mathematical	Analysis ToolPak	Returns the least common multiple
LEFT	Text	Built-in	Returns the leftmost characters from a text value
LEN	Text	Built-in	Returns the number of characters in a text string
LOOKUP (vector)	Lookup	Built-in	Looks up values in a vector or array
LOWER	Text	Built-in	Converts text to lowercase
MATCH	Lookup	Built-in	Looks up values in a reference or array
MAX	Statistical	Built-in	Returns the maximum value in a list of arguments
MEDIAN	Statistical	Built-in	Returns the median of the given numbers
MID	Text	Built-in	Returns a specific number of characters from a text string starting at the position
MIN	Statistical	Built-in	Returns the minimum value in a list of arguments
MINUTE	Date	Built-in	Converts a serial number to a minute
MINVERSE	Mathematical	Built-in	Returns the matrix inverse of an array
MMULT	Mathematical	Built-in	Returns the matrix product of two arrays
MOD	Mathematical	Built-in	Returns the remainder from division
MODE	Statistical	Built-in	Returns the most common value in a data set
MONTH	Date	Built-in	Converts a serial number to a month
MROUND	Mathematical	Analysis ToolPak	Returns a number rounded to the desired multiple
N	Information	Built-in	Returns a value converted to a number
NA	Information	Built-in	Returns the error value #N/A
NETWORKDAYS	Date	Analysis ToolPak	Returns the number of whole workdays between two dates
NOT	Logical	Built-in	Reverses the logic of its argument
NOW	Date	Built-in	Returns the serial number of the current date and time
ODD	Mathematical	Built-in	Rounds a number up to the nearest odd integer
OR	Logical	Built-in	Returns TRUE if any argument is TRUE
PERMUT	Statistical	Built-in	Returns the number of permutations for a given number of objects
PI	Mathematical	Built-in	Returns the value of Pi
POWER	Mathematical	Built-in	Returns the result of a number raised to a power
PRODUCT	Mathematical	Built-in	Multiplies its arguments
PROPER	Text	Built-in	Capitalises the first letter in each word of a text value
QUARTILE	Statistical	Built-in	Returns the quartile of a data set
QUOTIENT	Mathematical	Analysis ToolPak	Returns the integer portion of a division
RAND	Mathematical	Built-in	Returns a random number between 0 and 1
RANDBETWEEN	Mathematical	Analysis ToolPak	Returns a random number between the numbers you specify
RANK	Statistical	Built-in	Returns the rank of a number in a list of numbers
REPLACE	Text	Built-in	Replaces characters within text
REPT	Text	Built-in	Repeats text a given number of times
RIGHT	Text	Built-in	Returns the rightmost characters from a text value
ROMAN	Mathematical	Built-in	Converts an arabic numeral to roman, as text
ROUND	Mathematical	Built-in	Rounds a number to a specified number of digits
ROUNDDOWN	Mathematical	Built-in	Rounds a number down, toward zero
ROUNDUP	Mathematical	Built-in	Rounds a number up, away from zero
SECOND	Date	Built-in	Converts a serial number to a second
SIGN	Mathematical	Built-in	Returns the sign of a number
SLN	Financial	Built-in	Returns the straight-line depreciation of an asset for one period
SMALL	Statistical	Built-in	Returns the k-th smallest value in a data set
STDEV	Statistical	Built-in	Estimates standard deviation based on a sample
STDEVP	Statistical	Built-in	Calculates standard deviation based on the entire population
SUBSTITUTE	Text	Built-in	Substitutes new text for old text in a text string
SUBTOTAL	Mathematical	Built-in	Returns a subtotal in a list or database
SUM	Mathematical	Built-in	Adds its arguments
SUM_as_Running_Total	Mathematical	Built-in	Sample
SUM_using_names	Sample	Sample	Using SUM(jan)
SUM_with_OFFSET	Lookup	Built-in	Sample

SUMIF	Mathematical	Built-in	Adds the cells specified by a given criteria
SUMPRODUCT	Mathematical	Built-in	Returns the sum of the products of corresponding array components
SYD	Financial	Built-in	Returns the sum-of-years' digits depreciation of an asset for a specified per
T	Text	Built-in	Converts its arguments to text
TEXT	Text	Built-in	Formats a number and converts it to text
TIME	Date	Built-in	Returns the serial number of a particular time
-Timesheet	Sample	Sample	Sample
TIMEVALUE	Date	Built-in	Converts a time in the form of text to a serial number
TODAY	Date	Built-in	Returns the serial number of today's date
TRANSPOSE	Lookup	Built-in	Returns the transpose of an array
TREND	Statistical	Built-in	Returns values along a linear trend
TRIM	Text	Built-in	Removes spaces from text
TRUNC	Mathematical	Built-in	Truncates a number to an integer
TYPE	Information	Built-in	Returns a number indicating the data type of a value
UPPER	Text	Built-in	Converts text to uppercase
VALUE	Text	Built-in	Converts a text argument to a number
VAR	Statistical	Built-in	Estimates variance based on a sample
VARP	Statistical	Built-in	Calculates variance based on the entire population
VLOOKUP	Lookup	Built-in	Looks in the first column of an array and moves across the row to return the
WEEKDAY	Date	Built-in	Converts a serial number to a day of the week
WORKDAY	Date	Analysis ToolPak	Returns the serial number of the date before or after a specified number of v
YEAR	Date	Built-in	Converts a serial number to a year
YEARFRAC	Date	Analysis ToolPak	Returns the year fraction representing the number of whole days between s

	A	B	C	D	E	F	G	H	I	J
1	Time Calculation									
2										
3	Excel can work with time very easily.									
4	Time can be entered in various different formats and calculations performed.									
5	There are one or two oddities, but nothing which should put you off working with it.									
6	See the TimeSheet example for an example.									
7										
8	Typing time									
9	When time is entered into worksheet it should be entered with a colon between									
10	the hour and the minutes, such as 12:30 , rather than 12.30									
11										
12		1:30	12:30	20:15	22:45					
13										
14	Excel can cope with either the 24hour system or the am/pm system.									
15	To use the am/pm system you must enter the am or pm after the time.									
16	You must leave a space between the number and the text.									
17										
18		1:30 AM	1:30 PM	10:15 AM	10:15 PM					
19										
20	Finding the difference between two times									
21	You can subtract two time values to find the length of time between.									
22										
23		Start	End	Duration						
24		1:30	2:30	1:00	=D24-C24					
25		8:00	17:00	9:00	=D25-C25					
26		8:00 AM	5:00 PM	9:00 AM	If the result is not shown correctly,					
27	You may need to reformat the answer.									
28	Look at the section about formatting									
29	further in this worksheet.									
30										
31	Adding time									
32	You can add time to find a total time.									
33	This works well until the total time goes above 24 hours.									
34	For totals greater than 24 hours you may need to apply some special formatting.									
35										
36		Start	End	Duration						
37		1:30	2:30	1:00						
38		8:00	17:00	9:00						
39		7:30 AM	5:45 PM	10:15						
40				20:15						
41										
42	Formatting time									
43	When time is added together the result may go beyond 24 hours.									
44	Usually this gives an incorrect result, as in the example below.									
45	To correct this error, the result needs to be formatted with a Custom format.									
46										
47	Example 1 : Incorrect formatting									
48		Start	End	Duration						
49		7:00	18:30	11:30						
50		8:00	17:00	9:00						
51		7:30	17:45	10:15						
52			Total	6:45	=SUM(E49:E51)					
53										
54	Example 2 : Correct formatting									
55		Start	End	Duration						
56		7:00	18:30	11:30						
57		8:00	17:00	9:00						
58		7:30	17:45	10:15						
59			Total	30:45	=SUM(E56:E58)					
60										
61										
62	How To Apply Custom Formatting									
63	The custom format for time use a pair of square brackets [hh] on either side									
64	of the hours indicators.									
65										
66	1. Click on the cell which needs the format.				Format Cells					
67	2. Choose the Format menu.									

	A	B	C	D	E	F	G	H	I	J		
68		3. Choose Cells .										
69		4. Click the Number tag at the top right.										
70		5. Choose Custom .										
71		6. Click inside the Type: box.										
72		7. Type [hh]:mm as the format.										
73		8. Click OK to confirm.										
74												
75												
76												
77												
78												
79												
80												
81												
82												
83												
84												
85												
86												
87												

	A	B	C	D	E	F	G	H	I	J	K
1	TimeSheet for Flexi										
2											
3		Week beginning	Mon 05-Jan-98			Normal Hours	37:30				
4											
5		Day	Arrive	Lunch Out	Lunch In	Depart	Total				
6		Mon 05	8:00	13:00	14:00	17:00	8:00	=(F6-C6)	(E6-D6)		
7		Tue 06	8:45	12:30	13:30	17:00	7:15				
8		Wed 07	9:00	13:00	14:00	18:00	8:00				
9		Thu 08	8:30	13:00	14:00	17:00	7:30				
10		Fri 09	8:00	12:00	13:00	17:00	8:00				
11						Total Hours	38:45	=SUM(G6:G10)			
12											
13						Under worked by	-	=IF(G3-G11>0,G3-G11,"-")			
14						Over worked by	1:15	=IF(G3-G11<0,ABS(G3-G11),"-")			
15											
16	This is simple example of a timesheet.										
17											
18	Instructions :										
19	Type the week start date in cell C3, the Week beginning.										
20	Use the format dd/mm/yy, the name of the day will appear automatically.										
21	The date is then passed down to the Day column.										
22											
23	Type the amount of hours you are expected to work in G3, the Normal Hours.										
24	This is used later to calculate if have worked over or under the required hours.										
25											
26	Type the times you arrive and leave work in the appropriate columns.										
27	Use the format of hh:mm.										
28											
29	Note										
30	The Total Hours cell has been formatted as [hh]:mm.										
31	This ensures the total hours can be expressed as a value above 24 hours.										
32	If the [hh]:mm format had not been used the Total Hours would show as :										
33							14:45				
34	If the [hh]:mm format does not show in the cell format dialog box on your computer, it can be created using Format, Cells, Number, Custom.										

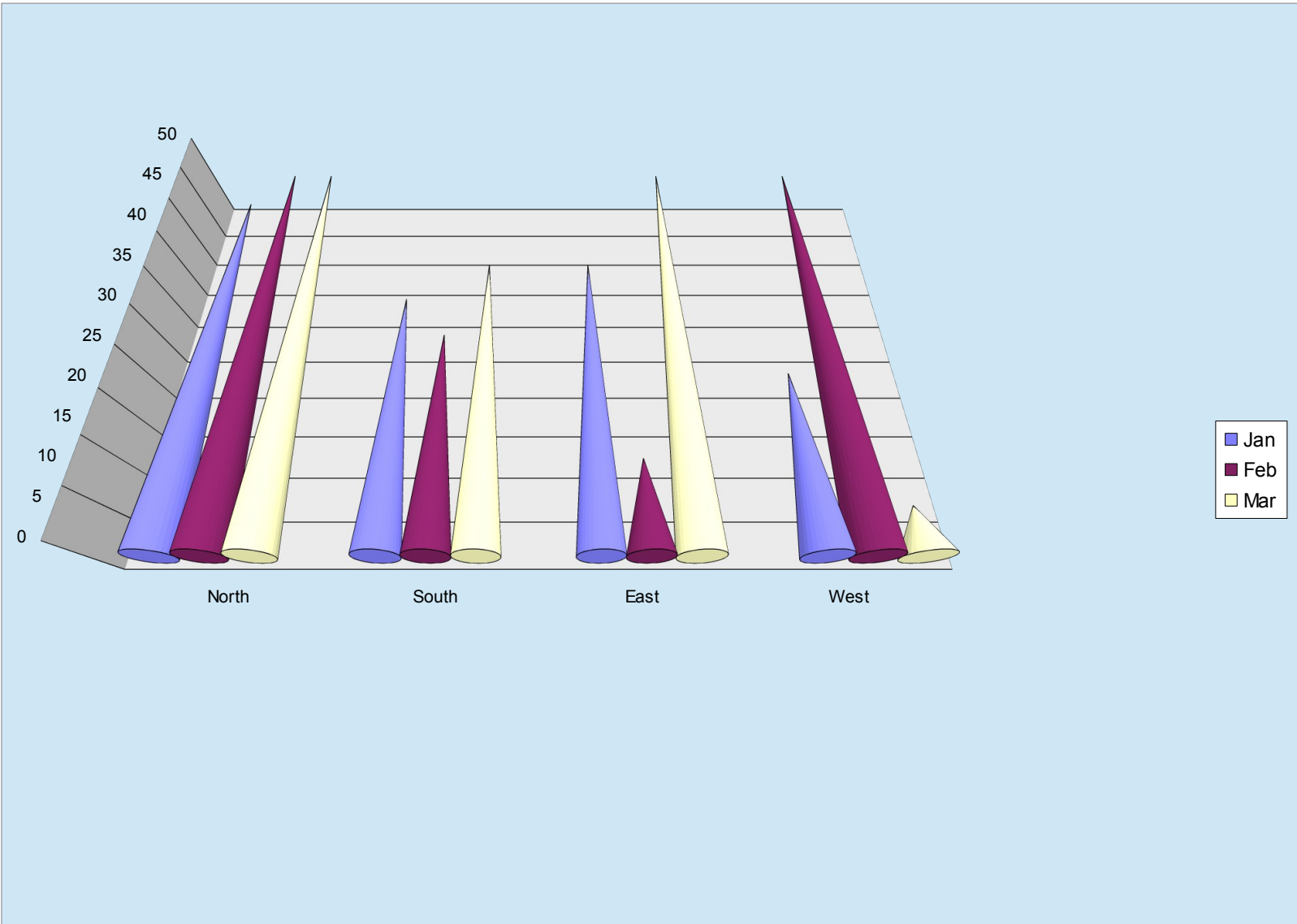
	A	B	C	D	E	F	G	H	I
1	Split Forename and Surname								
2									
3	The following formula are useful when you have one cell containing text which needs								
4	to be split up.								
5	One of the most common examples of this is when a persons Forename and Surname								
6	are entered in full into a cell.								
7									
8	The formula use various text functions to accomplish the task.								
9	Each of the techniques uses the space between the names to identify where to split.								
10									
11	Finding the First Name								
12									
13			Full Name	First Name					
14			Alan Jones	Alan	=LEFT(C14,FIND(" ",C14,1))				
15			Bob Smith	Bob	=LEFT(C15,FIND(" ",C15,1))				
16			Carol Williams	Carol	=LEFT(C16,FIND(" ",C16,1))				
17									
18									
19	Finding the Last Name								
20									
21			Full Name	Last Name					
22			Alan Jones	Jones	=RIGHT(C22,LEN(C22)-FIND(" ",C22))				
23			Bob Smith	Smith	=RIGHT(C23,LEN(C23)-FIND(" ",C23))				
24			Carol Williams	Williams	=RIGHT(C24,LEN(C24)-FIND(" ",C24))				
25									
26									
27									
28	Finding the Last name when a Middle name is present								
29									
30	The formula above cannot handle any more than two names.								
31	If there is also a middle name, the last name formula will be incorrect.								
32	To solve the problem you have to use a much longer calculation.								
33									
34			Full Name	Last Name					
35			Alan David Jones	Jones					
36			Bob John Smith	Smith					
37			Carol Susan Williams	Williams					
38					=RIGHT(C37,LEN(C37)-FIND("#",SUBSTITUTE(C37," ","#",LEN(C37)-LEN(SUBSTITUTE(C37," ","")))))				
39									
40	Finding the Middle name								
41									
42			Full Name	Middle Name					
43			Alan David Jones	David					
44			Bob John Smith	John					
45			Carol Susan Williams	Susan					
46					=LEFT(RIGHT(C45,LEN(C45)-FIND(" ",C45,1)),FIND(" ",RIGHT(C45,LEN(C45)-FIND(" ",C45,1)),1))				

	A	B	C	D	E	F	G	H	I	J
58			Value A	120						
59			Value B	60						
60			A as % of B	50%	=D59/D58					
61										
62			You will need to format the result as % by using the % button							
63			on the toolbar.							
64										
65			Example 3							
66			An manager has been asked to submit budget requirements for next year.							
67			The manger needs to specify what will be required each quarter.							
68			The manager knows what has been spent by each region in the previous year.							
69			By analysing the past years spending, the manager hopes to predict							
70			what will need to be spent in the next year.							
71										
72			Last years figures							
73			Region	Q1	Q2	Q3	Q4			
74			North	9,000	2,000	9,000	7,000			
75			South	7,000	4,000	9,000	5,000			
76			East	2,000	8,000	7,000	3,000			
77			West	8,000	9,000	6,000	5,000	Total		
78			Total	26,000	23,000	31,000	20,000	100,000		
79										
80			Last years Quarters as % of last years Total							
81			Region	Q1	Q2	Q3	Q4			
82			North	9%	2%	9%	7%	=G74/\$H\$78		
83			South	7%	4%	9%	5%	=G75/\$H\$78		
84			East	2%	8%	7%	3%	=G76/\$H\$78		
85			West	8%	9%	6%	5%	=G77/\$H\$78		
86			Total	26%	23%	31%	20%	=G78/\$H\$78		
87										
88			Next years budget		150,000					
89			Next years estimated budget requirements							
90			Region	Q1	Q2	Q3	Q4			
91			North	13,500	3,000	13,500	10,500	=G82*\$E\$88		
92			South	10,500	6,000	13,500	7,500	=G83*\$E\$88		
93			East	3,000	12,000	10,500	4,500	=G84*\$E\$88		
94			West	12,000	13,500	9,000	7,500	Total		
95			Total	39,000	34,500	46,500	30,000	150,000		
96										
97										
98			Finding an original value after an increase has been applied							
99										
100			Increased value	150						
101			% increase	25%						
102			Original value	120	=D100/(100%+D101)					
103										
104			Example 4							
105			An employ has to submit an expenses claim for travelling and accommodation.							
106			The claim needs to show the VAT tax portion of each receipt.							
107			Unfortunately the receipts held by the employee only show the total amount.							
108			The employee needs to split this total to show the original value and the VAT amount.							
109										
110			VAT rate	17.50%						
111										
112			Receipt	Total	Actual Value	Vat Value				
113			Petrol	£10.00	£8.51	£1.49	=D113-D113/(100%+\$D\$110)			
114			Hotel	£235.00	£200.00	£35.00				
115			Petrol	£117.50	£100.00	£17.50				

	A	B	C	D	E	F	G	H	I	J
116				=D115/(100%+\$D\$110)						

	A	B	C	D	E	F	G	H	I
1	Show all formula								
2									
3		You can view all the formula on the worksheet by pressing Ctrl and `.							
4		The ` is the left single quote usually found on the key to left of number 1.							
5									
6		Press Ctrl and ` to see the formula below. <i>(The screen may look a bit odd.)</i>							
7		Press the same combination to see the original view.							
8									
9		10	20	30					
10		30	40	70					
11		50	60	60					
12		70	80	30					

	A	B	C	D	E	F	G	H	I
1	SUM using names								
2	<hr/>								
3	You can use the names typed at the top of columns or side of rows in calculations								
4	simply by typing the name into the formula.								
5									
6	Try this example:								
7	Go to cell C16 and then enter the formula =SUM(jan)								
8	The result will show.								
9	This formula can be copied to D16 and E16 , and the names change to Feb and Mar .								
10									
11			Jan	Feb	Mar				
12	North	45	50	50					
13	South	30	25	35					
14	East	35	10	50					
15	West	20	50	5					
16	Total								
17									
18									
19	If it does not work !								
20	The feature may have been switched off on your computer.								
21	You can switch it on by using Tools, Options, Calculation, Accept Labels in Formula.								



	A	B	C	D	E	F	G	H	I
1	Instant Charts								
2	<hr/>								
3	You can create a chart quickly without having to use the chart button on								
4	the toolbar by pressing the function key F11 whilst inside a range of data.								
5									
6			Jan	Feb	Mar				
7	North	45	50	50					
8	South	30	25	35					
9	East	35	10	50					
10	West	20	50	5					
11									
12	Click anywhere inside the table above.								
13	Then press F11 .								

	A	B	C	D	E	F	G	H
1	Filename formula							
2								
3	There may be times when you need to insert the name of the current workbook							
4	or worksheet in to a cell.							
5								
6	This can be done by using the CELL() function, shown below.							
7	file:///C:/windows/TEMP/conv_temp/OO-1441465672391.xls#\$ Filename formula							
8	=CELL("filename")							
9								
10	The problem with this is that it gives the complete path including drive letter and folders.							
11	To just pick out the workbook or worksheet name you need to use text functions.							
12								
13	To pick the Path.							
14	#VALUE!							
15	=MID(CELL("filename"),1,FIND("[",CELL("filename"))-1)							
16								
17	To pick the Workbook name.							
18	#VALUE!							
19	=MID(CELL("filename"),FIND("[",CELL("filename"))+1,FIND("]",CELL("filename"))-FIND("[",CELL("filename"))-1)							
20								
21	To pick the Worksheet name.							
22	#VALUE!							
23	=MID(CELL("filename"),FIND("]",CELL("filename"))+1,255)							

	A	B	C	D	E	F	G	H	I
1	Brackets in formula								
2									
3	Sometimes you will need to use brackets, (also known as 'braces'), in formula.								
4	This is to ensure that the calculations are performed in the order that you need.								
5	The need for brackets occurs when you mix plus or minus with divide or multiply.								
6									
7	Mathematically speaking the * and / are more important than + and - .								
8	The * and / operations will be calculated before + and - .								
9									
10	Example 1 : The wrong answer !								
11									
12			10						
13			20						
14			2						
15			50	=C12+C13*C14					
16									
17	You may expect that 10 + 20 would equal 30								
18	And then 30 * 2 would equal 60								
19									
20	But because the * is calculated first Excel sees the								
21	calculation as 20 * 2 resulting in 40								
22	And then 10 + 40 resulting in 50								
23									
24									
25	Example 2 : The correct answer.								
26									
27			10						
28			20						
29			2						
30			60	=(C27+C28)*C29					
31									
32	By placing brackets around (10+20) Excel performs this								
33	part of the calculation first, resulting in 30								
34	Then the 30 is multiplied by 2 resulting in 60								

	A	B	C	D	E	F	G	H	
1	Age Calculation								
2									
3		You can calculate a persons age based on their birthday and todays date.							
4		The calculation uses the DATEDIF() function.							
5		The DATEDIF() is not documented in Excel 5, 7 or 97, but it is in 2000.							
6		(Makes you wonder what else Microsoft forgot to tell us!)							
7									
8		Birth date :	1-Jan-60						
9									
10		Years lived :	#NAME?	=DATEDIF(C8,TODAY(),"y")					
11		and the months :	#NAME?	=DATEDIF(C8,TODAY(),"ym")					
12		and the days :	#NAME?	=DATEDIF(C8,TODAY(),"md")					
13									
14		You can put this all together in one calculation, which creates a text version.							
15		#NAME?							
16		="Age is "&DATEDIF(C8,TODAY(),"y")&" Years, "&DATEDIF(C8,TODAY(),"ym")&" Months and "&DATEDIF(C8,TODAY(),"md")&" Days"							
17									
18									
19	Another way to calculate age								
20		This method gives you an age which may potentially have decimal places representing the months.							
21		If the age is 20.5, the .5 represents 6 months.							
22									
23		Birth date :	1-Jan-60						
24									
25		Age is :	55.68	=(TODAY()-C23)/365.25					

	A	B	C	D	E	F	G	H	I
1	AutoSum Shortcut Key								
2									
3	Instead of using the AutoSum button from the toolbar,								
4	you can press Alt and = to achieve the same result.								
5									
6	Try it here :								
7	Move to a blank cell in the Total row or column, then press Alt and = .								
8	or								
9	Select a row, column or all cells and then press Alt and = .								
10									
11				Jan	Feb	Mar	Total		
12		North	10	50	90				
13		South	20	60	100				
14		East	30	70	200				
15		West	40	80	300				
16		Total							

	A	B	C	D	E	F	G	H	I
1	ABS								
2									
3			Number	Absolute Value					
4			10	10	=ABS(C4)				
5			-10	10	=ABS(C5)				
6			1.25	1.25	=ABS(C6)				
7			-1.25	1.25	=ABS(C7)				
8									
9	What Does it Do ?								
10	This function calculates the value of a number, irrespective of whether it is positive or negative.								
11									
12	Syntax								
13	=ABS(CellAddress or Number)								
14									
15	Formatting								
16	The result will be shown as a number, no special formatting is needed.								
17									
18	Example								
19	The following table was used by a company testing a machine which cuts timber.								
20	The machine needs to cut timber to an exact length.								
21	Three pieces of timber were cut and then measured.								
22	In calculating the difference between the Required Length and the Actual Length it does								
23	not matter if the wood was cut too long or short, the measurement needs to be expressed as								
24	an absolute value.								
25									
26	Table 1 shows the original calculations.								
27	The Difference for Test 3 is shown as negative, which has a knock on effect								
28	when the Error Percentage is calculated.								
29	Whether the wood was too long or short, the percentage should still be expressed								
30	as an absolute value.								
31									
32	Table 1								
33			Test Cut	Required Length	Actual Length	Difference	Error Percentage		
34			Test 1	120	120	0	0%		
35			Test 2	120	90	30	25%		
36			Test 3	120	150	-30	-25%		
37						=D36-E36			
38									
39	Table 2 shows the same data but using the =ABS() function to correct the calculations.								
40									
41	Table 2								
42			Test Cut	Required Length	Actual Length	Difference	Error Percentage		
43			Test 1	120	120	0	0%		
44			Test 2	120	90	30	25%		
45			Test 3	120	150	30	25%		
46						=ABS(D45-E45)			

	A	B	C	D	E	F	G	H	I
1	ADDRESS								
2	<hr/>								
3				Type a column number :		2			
4				Type a row number :		3			
5				Type a sheet name :		Hello			
6									
7				\$B\$3		=ADDRESS(F4,F3,1,TRUE)			
8				B\$3		=ADDRESS(F4,F3,2,TRUE)			
9				\$B3		=ADDRESS(F4,F3,3,TRUE)			
10				B3		=ADDRESS(F4,F3,4,TRUE)			
11									
12				R3C2		=ADDRESS(F4,F3,1,FALSE)			
13				R3C[2]		=ADDRESS(F4,F3,2,FALSE)			
14				R[3]C2		=ADDRESS(F4,F3,3,FALSE)			
15				R[3]C[2]		=ADDRESS(F4,F3,4,FALSE)			
16									
17				Hello.\$B\$3		=ADDRESS(F4,F3,1,TRUE,F5)			
18				Hello.B\$3		=ADDRESS(F4,F3,2,TRUE,F5)			
19				Hello.\$B3		=ADDRESS(F4,F3,3,TRUE,F5)			
20				Hello.B3		=ADDRESS(F4,F3,4,TRUE,F5)			
21									
22	What Does It Do ?								
23	This function creates a cell reference as a piece of text, based on a row and column								
24	numbers given by the user.								
25	This type of function is used in macros rather than on the actual worksheet.								
26									
27	Syntax								
28	=ADDRESS(RowNumber,ColNumber,Absolute,A1orR1C1,SheetName)								
29	The RowNumber is the normal row number from 1 to 16384.								
30	The ColNumber is from 1 to 256, cols A to IV.								
31	The Absolute can be 1,2,3 or 4.								
32	When 1 the reference will be in the form \$A\$1, column and row absolute.								
33	When 2 the reference will be in the form A\$1, only the row absolute.								
34	When 3 the reference will be in the form \$A1, only the column absolute.								
35	When 4 the reference will be in the form A1, neither col or row absolute.								
36	The A1orR1C1 is either TRUE or FALSE.								
37	When TRUE the reference will be in the form A1, the normal style for cell addresses.								
38	When FALSE the reference will be in the form R1C1, the alternative style of cell address.								
39	The SheetName is a piece of text to be used as the worksheet name in the reference.								
40	The SheetName does not actually have to exist.								

	A	B	C	D	E	F	G	H	I
1	AND								
2									
3			Items To Test	Result					
4			500	800	TRUE	=AND(C4>=100,D4>=100)			
5			500	25	FALSE	=AND(C5>=100,D5>=100)			
6			25	500	FALSE	=AND(C6>=100,D6>=100)			
7				12	TRUE	=AND(D7>=1,D7<=52)			
8									
9	What Does It Do?								
10	This function tests two or more conditions to see if they are all true.								
11	It can be used to test that a series of numbers meet certain conditions.								
12	It can be used to test that a number or a date falls between an upper and lower limit.								
13	Normally the AND() function would be used in conjunction with a function such as =IF().								
14									
15	Syntax								
16	=AND(Test1,Test2)								
17	Note that there can be up to 30 possible tests.								
18									
19	Formatting								
20	When used by itself it will show TRUE or FALSE.								
21									
22	Example 1								
23	The following example shows a list of examination results.								
24	The teacher wants to find the pupils who scored above average in all three exams.								
25	The =AND() function has been used to test that each score is above the average.								
26	The result of TRUE is shown for pupils who have scored above average in all three exams.								
27									
28	Name	Maths	English	Physics	Passed				
29	Alan	80	75	85	TRUE				
30	Bob	50	30	40	FALSE				
31	Carol	60	70	50	FALSE				
32	David	90	85	95	TRUE				
33	Eric	20	30	Absent	FALSE				
34	Fred	40	60	80	FALSE				
35	Gail	10	90	80	FALSE				
36	Harry	80	70	60	TRUE				
37	Ian	30	10	20	FALSE				
38	Janice	10	20	30	FALSE				
39	=AND(C38>=AVERAGE(\$C\$29:\$C\$38),D38>=AVERAGE(\$D\$29:\$D\$38),E38>=AVERAGE(\$E\$29:\$E\$38))								
40									
41	Averages	47	54	60					

	A	B	C	D	E	F	G	H	I
1	AREAS								
2									
3		Pink	Name	Age		Err:504	=AREAS(PeopleLists)		
4			Alan	18					
5			Bob	17					
6			Carol	20					
7									
8		Green	Name	Age					
9			David	20					
10			Eric	16					
11			Fred	19					
12									
13	What Does It Do?								
14	This function tests a range to determine whether it is a single block of data, or whether								
15	it is a multiple selection.								
16	If it is a single block the result will be 1.								
17	If it is a multiple block the result will be the number of ranges selected.								
18	The function is designed to be used in macros.								
19									
20	Syntax								
21	=AREAS(RangeToTest)								
22									
23	Formatting								
24	The result will be shown as a number.								
25									
26	Example								
27	The example at the top of this page shows two ranges coloured pink and green.								
28	These ranges have been given the name PeopleLists.								
29	The =AREAS(PeopleLists) gives a result of 2 indicating that there are two separate								
30	selections which form the PeopleLists range.								
31									
32	Note								
33	To name multiple ranges the CTRL key must be used.								
34	In the above example the pink range was selected as normal, then the Ctrl key								
35	was held down before selecting the green range.								
36	When a Range Name is created it will consider both Pink and Green as being one range.								

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	AVERAGE													
2														
3				Mon	Tue	Wed	Thu	Fri	Sat	Sun	Average			
4			Temp	30	31	32	29	26	28	27	29	=AVERAGE(D4:J4)		
5			Rain	0	0	0	4	6	3	1	2	=AVERAGE(D5:J5)		
6														
7				Mon	Tue	Wed	Thu	Fri	Sat	Sun	Average			
8			Temp	30		32	29	26	28	27	28.6667	=AVERAGE(D8:J8)		
9			Rain	0		0	4	6	3	1	2.33333	=AVERAGE(D9:J9)		
10														
11				Mon	Tue	Wed	Thu	Fri	Sat	Sun	Average			
12			Temp	30	No	32	29	26	28	27	28.6667	=AVERAGE(D12:J12)		
13			Rain	0	Reading	0	4	6	3	1	2.33333	=AVERAGE(D13:J13)		
14														
15	What Does It Do ?													
16	This function calculates the average from a list of numbers.													
17	If the cell is blank or contains text, the cell will not be used in the average calculation.													
18	If the cell contains zero 0, the cell will be included in the average calculation.													
19														
20	Syntax													
21	=AVERAGE(Range1,Range2,Range3... through to Range30)													
22														
23	Formatting													
24	No special formatting is needed.													
25														
26	Note													
27	To calculate the average of cells which contain text or blanks use =SUM() to get the total and													
28	then divide by the count of the entries using =COUNTA().													
29														
30				Mon	Tue	Wed	Thu	Fri	Sat	Sun	Average			
31			Temp	30	No	32	29	26	28	27	24.5714	=SUM(D31:J31)/COUNTA(D31:J31)		
32			Rain	0	Reading	0	4	6	3	1	2	=SUM(D32:J32)/COUNTA(D32:J32)		
33														
34				Mon	Tue	Wed	Thu	Fri	Sat	Sun	Average			
35			Temp	30		32	29	26	28	27	28.6667	=SUM(D35:J35)/COUNTA(D35:J35)		
36			Rain	0		0	4	6	3	1	2.33333	=SUM(D36:J36)/COUNTA(D36:J36)		
37														
38														
39	Further Usage													

	A	B	C	D	E	F	G	H	I
1	BIN2DEC								
2	<hr/>								
3			Binary Number	Decimal Equivalent					
4			0	0	=BIN2DEC(C4)				
5			1	1	=BIN2DEC(C5)				
6			10	2	=BIN2DEC(C6)				
7			11	3	=BIN2DEC(C7)				
8			11111111	511	=BIN2DEC(C8)				
9			111111111	-1	=BIN2DEC(C9)				
10			1111111110	-2	=BIN2DEC(C10)				
11			1111111101	-3	=BIN2DEC(C11)				
12			100000000	-512	=BIN2DEC(C12)				
13			1111111111	Err:502	=BIN2DEC(C13)				
14	<hr/>								
15	What Does It Do ?								
16	This function converts a binary number to decimal.								
17	Negative numbers are represented using two's-complement notation.								
18	<hr/>								
19	Syntax								
20	=BIN2DEC(BinaryNumber)								
21	The binary number has a limit of ten characters.								
22	<hr/>								
23	Formatting								
24	No special formatting is needed.								

	A	B	C	D	E	F	G	H
1	CEILING							
2	<hr/>							
3			Number	Raised Up				
4			2.1	3	=CEILING(C4,1)			
5			1.5	2	=CEILING(C5,1)			
6			1.9	2	=CEILING(C6,1)			
7			20	30	=CEILING(C7,30)			
8			25	30	=CEILING(C8,30)			
9			40	60	=CEILING(C9,30)			
10	<hr/>							
11	What Does It Do ?							
12	This function rounds a number up to the nearest multiple specified by the user.							
13	<hr/>							
14	Syntax							
15	=CEILING(ValueToRound,MultipleToRoundUpTo)							
16	The ValueToRound can be a cell address or a calculation.							
17	<hr/>							
18	Formatting							
19	No special formatting is needed.							
20	<hr/>							
21	Example 1							
22	The following table was used by a estate agent renting holiday apartments.							
23	The properties being rented are only available on a weekly basis.							
24	When the customer supplies the number of days required in the property the =CEILING()							
25	function rounds it up by a multiple of 7 to calculate the number of full weeks to be billed.							
26	<hr/>							
27			Days Required	Days To Be Billed				
28		Customer 1	3	7	=CEILING(D28,7)			
29		Customer 2	4	7	=CEILING(D29,7)			
30		Customer 3	10	14	=CEILING(D30,7)			
31	<hr/>							
32	<hr/>							
33	Example 2							
34	The following table was used by a builders merchant delivering products to a construction site.							
35	The merchant needs to hire trucks to move each product.							
36	Each product needs a particular type of truck of a fixed capacity.							
37	<hr/>							
38	Table 1 calculates the number of trucks required by dividing the Units To Be Moved by							
39	the Capacity of the truck.							
40	This results of the division are not whole numbers, and the builder cannot hire just part							
41	of a truck.							
42	<hr/>							
43	Table 1							
44		Item	Units To Be Moved	Truck Capacity	Trucks Needed			
45		Bricks	1000	300	3.33	=D45/E45		
46		Wood	5000	600	8.33	=D46/E46		
47		Cement	2000	350	5.71	=D47/E47		
48	<hr/>							
49	Table 2 shows how the =CEILING() function has been used to round up the result of							
50	the division to a whole number, and thus given the exact amount of trucks needed.							
51	<hr/>							
52	Table 2							

	A	B	C	D	E	F	G	H
53			Item	Units To Be Moved	Truck Capacity	Trucks Needed		
54			Bricks	1000	300	4	=CEILING(D54/E54,1)	
55			Wood	5000	600	9	=CEILING(D55/E55,1)	
56			Cement	2000	350	6	=CEILING(D56/E56,1)	
57								
58								
59	Example 3							
60	The following tables were used by a shopkeeper to calculate the selling price of an item.							
61	The shopkeeper buys products by the box.							
62	The cost of the item is calculated by dividing the Box Cost by the Box Quantity.							
63	The shopkeeper always wants the price to end in 99 pence.							
64								
65	Table 1 shows how just a normal division results in varying Item Costs.							
66								
67	Table 1							
68			Item	Box Qty	Box Cost	Cost Per Item		
69			Plugs	11	£20	1.81818	=D69/C69	
70			Sockets	7	£18.25	2.60714	=D70/C70	
71			Junctions	5	£28.10	5.62000	=D71/C71	
72			Adapters	16	£28	1.75000	=D72/C72	
73								
74								
75	Table 2 shows how the =CEILING() function has been used to raise the Item Cost to							
76	always end in 99 pence.							
77								
78	Table 2							
79			Item	In Box	Box Cost	Cost Per Item	Raised Cost	
80			Plugs	11	£20	1.81818	1.99	
81			Sockets	7	£18.25	2.60714	2.99	
82			Junctions	5	£28.10	5.62000	5.99	
83			Adapters	16	£28	1.75000	1.99	
84							=INT(E83)+CEILING(MOD(E83,1),0.99)	
85								
86	Explanation							
87			=INT(E83)				Calculates the integer part of the price.	
88			=MOD(E83,1)				Calculates the decimal part of the price.	
89			=CEILING(MOD(E83),0.99)				Raises the decimal to 0.99	

	A	B	C	D	E	F	G	H	I	
1	CELL									
2	<hr/>									
3			This is the cell and contents to test.	17.50%						
4										
5			The cell address.	\$D\$3	=CELL("address",D3)					
6			The column number.	4	=CELL("col",D3)					
7			The row number.	3	=CELL("row",D3)					
8			The actual contents of the cell.	0.175	=CELL("contents",D3)					
9			The type of entry in the cell. Shown as b for blank, I for text, v for value.	v	=CELL("type",D3)					
10			The alignment of the cell. Shown as ' for left, ^ for centre, " for right. Nothing is shown for numeric entries.		=CELL("prefix",D3)					
11			The width of the cell.	12	=CELL("width",D3)					
12			The number format fo the cell. (See the table shown below)	P2	=CELL("format",D3)					
13			Formatted for braces () on positive values. 1 for yes, 0 for no.	0	=CELL("parentheses",D3)					
14			Formatted for coloured negatives. 1 for yes, 0 for no.	0	=CELL("color",D3)					
15			The type of cell protection. 1 for a locked, 0 for unlocked.	1	=CELL("protect",D3)					
16			The filename containing the cell.	file:///C:/windows/TEMP/conv_temp/OO-1441465672391.xls#\$CELL						
17					=CELL("filename",D3)					
18	What Does It Do ?									
19	This function examines a cell and displays information about the contents, position and formatting.									
20										
21	Syntax									
22	=CELL("TypeOfInfoRequired",CellToTest)									
23	The TypeOfInfoRequired is a text entry which must be surrounded with quotes " ".									
24										
25	Formatting									
26	No special formatting is needed.									
27										
28	Codes used to show the formatting of the cell.									
29										
30			Numeric Format	Code						
31			General	G						
32			0	F0						
33			#,##0	.0						
34			0.00	F2						
35			#,##0.00	.2						
36			\$\$,##0_);(,\$,##0)	C0						
37			\$\$,##0_);[Red](,\$,##0)	C0-						
38			\$\$,##0.00_);(,\$,##0.00)	C2						
39			\$\$,##0.00_);[Red](,\$,##0.00)	C2-						
40			0%	P0						
41			0.00%	P2						
42			0.00E+00	S2						
43			# ?/? or # ??/??	G						
44			m/d/yy or m/d/yy h:mm or mm/dd/yy.	D4						
45			d-mmm-yy or dd-mmm-yy	D1						
46			d-mmm or dd-mmm	D2						
47			mmm-yy	D3						
48			mm/dd	D5						
49			h:mm AM/PM	D7						
50			h:mm:ss AM/PM	D6						
51			h:mm	D9						
52			h:mm:ss	D8						
53										
54										
55	Example									
56	The following example uses the =CELL() function as part of a formula which extracts the filename.									
57										
58			The name of the current file is :	#VALUE!						
59	=MID(CELL("filename"),FIND("'",CELL("filename"))+1,FIND("'",CELL("filename"))-FIND("'",CELL("filename"))-1)									

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	
1	CHAR																								
2																									
3																									
4							65	A					=CHAR(G4)												
5							66	B					=CHAR(G5)												
6							169	©					=CHAR(G6)												
7																									
8	What Does It Do?																								
9	This function converts a normal number to the character it represent in the ANSI																								
10	character set used by Windows.																								
11																									
12	Syntax																								
13	=CHAR(Number)																								
14	The Number must be between 1 and 255.																								
15																									
16	Formatting																								
17	The result will be a character with no special formatting.																								
18																									
19	Example																								
20	The following is a list of all 255 numbers and the characters they represent.																								
21	Note that most Windows based program may not display some of the special characters,																								
22	these will be displayed as a small box.																								
23																									
24	1	26	51	3	76	L	101	e	126	~	151	—	176	°	201	É	226	â	251	û					
25	2	27	52	4	77	M	102	f	127	DEL	152	~	177	±	202	Ê	227	ã	252	ü					
26	3	28	53	5	78	N	103	g	128	€	153	™	178	²	203	Ë	228	ä	253	ý					
27	4	29	54	6	79	O	104	h	129	◆	154	š	179	³	204	Ì	229	å	254	þ					
28	5	30	55	7	80	P	105	i	130	,	155	›	180	´	205	Í	230	æ	255	ÿ					
29	6	31	56	8	81	Q	106	j	131	f	156	œ	181	µ	206	Î	231	ç							
30	7	32	57	9	82	R	107	k	132	„	157	◆	182	¶	207	Ï	232	è							
31	8	33	!	58	:	83	108	l	133	...	158	ž	183	·	208	Ð	233	é							
32	9	34	"	59	;	84	109	m	134	†	159	ÿ	184	,	209	Ñ	234	ê							
33	10	35	#	60	<	85	110	n	135	‡	160		185	¹	210	Ò	235	ë							
34	11	36	\$	61	=	86	111	o	136	^	161	ı	186	º	211	Ó	236	ì							
35	12	37	%	62	>	87	112	p	137	‰	162	¢	187	»	212	Ô	237	í							
36	13	38	&	63	?	88	113	q	138	Š	163	£	188	¼	213	Õ	238	î							
37	14	39	'	64	@	89	114	r	139	‹	164	¤	189	½	214	Ö	239	ï							
38	15	40	(	65	A	90	115	s	140	Œ	165	¥	190	¾	215	×	240	ð							
39	16	41	)	66	B	91	116	t	141	◆	166	¦	191	¿	216	Ø	241	ñ							
40	17	42	*	67	C	92	117	u	142	Ž	167	§	192	À	217	Ù	242	ò							
41	18	43	+	68	D	93	118	v	143	◆	168	¨	193	Á	218	Ú	243	ó							
42	19	44	,	69	E	94	119	w	144	◆	169	©	194	Â	219	Û	244	ô							
43	20	45	-	70	F	95	120	x	145	´	170	ª	195	Ã	220	Ü	245	õ							
44	21	46	.	71	G	96	121	y	146	´	171	«	196	Ä	221	Ý	246	ö							
45	22	47	/	72	H	97	122	z	147	“	172	¬	197	Å	222	Þ	247	÷							
46	23	48	0	73	I	98	123	{	148	”	173	-	198	Æ	223	ß	248	ø							
47	24	49	1	74	J	99	124	|	149	•	174	®	199	Ç	224	à	249	ù							
48	25	50	2	75	K	100	125	}	150	-	175	¯	200	È	225	á	250	ú							
49																									
50	Note																								
51	Number 32 does not show as it is the SPACEBAR character.																								

	A	B	C	D	E	F	G	H	I	J
1	CHOOSE									
2										
3			Index Value	Result						
4			1	Alan	=CHOOSE(C4,"Alan","Bob","Carol")					
5			3	Carol	=CHOOSE(C5,"Alan","Bob","Carol")					
6			2	Bob	=CHOOSE(C6,"Alan","Bob","Carol")					
7			3	18%	=CHOOSE(C7,10%,15%,18%)					
8			1	10%	=CHOOSE(C8,10%,15%,18%)					
9			2	15%	=CHOOSE(C9,10%,15%,18%)					
10										
11										
12	What Does It Do?									
13	This function picks from a list of options based upon an Index value given to by the user.									
14										
15	Syntax									
16	=CHOOSE(UserValue, Item1, Item2, Item3 through to Item29)									
17										
18	Formatting									
19	No special formatting is required.									
20										
21	Example									
22	The following table was used to calculate the medals for athletes taking part in a race.									
23	The Time for each athlete is entered.									
24	The =RANK() function calculates the finishing position of each athlete.									
25	The =CHOOSE() then allocates the correct medal.									
26	The =IF() has been used to filter out any positions above 3, as this would cause									
27	the error of #VALUE to appear, due to the fact the =CHOOSE() has only three items in it.									
28										
29			Name	Time	Position	Medal				
30			Alan	1:30	2	Silver	=IF(D30<=3,CHOOSE(D30,"Gold","Silver","Bronze"),"unplaced")			
31			Bob	1:15	4	unplaced	=IF(D31<=3,CHOOSE(D31,"Gold","Silver","Bronze"),"unplaced")			
32			Carol	2:45	1	Gold	=IF(D32<=3,CHOOSE(D32,"Gold","Silver","Bronze"),"unplaced")			
33			David	1:05	5	unplaced	=IF(D33<=3,CHOOSE(D33,"Gold","Silver","Bronze"),"unplaced")			
34			Eric	1:20	3	Bronze	=IF(D34<=3,CHOOSE(D34,"Gold","Silver","Bronze"),"unplaced")			
35					=RANK(C34,C30:C34)					

	A	B	C	D	E	F	G	H	I
1	CLEAN								
2									
3			Dirty Text	Clean Text					
4			Hello	Hello	=CLEAN(C4)				
5			Hello	Hello	=CLEAN(C5)				
6			Hello	Hello	=CLEAN(C6)				
7									
8	What Does It Do?								
9	This function removes any nonprintable characters from text.								
10	These nonprinting characters are often found in data which has been imported								
11	from other systems such as database imports from mainframes.								
12									
13	Syntax								
14	=CLEAN(TextToBeCleaned)								
15									
16	Formatting								
17	No special formatting is needed. The result will show as normal text.								

	A	B	C	D	E	F	G	H	I	J	K
1	CODE										
2											
3			Letter	ANSI Code							
4			A	65	=CODE(C4)						
5			B	66	=CODE(C5)						
6			C	67	=CODE(C6)						
7			a	97	=CODE(C7)						
8			b	98	=CODE(C8)						
9			c	99	=CODE(C9)						
10			Alan	65	=CODE(C10)						
11			Bob	66	=CODE(C11)						
12			Carol	67	=CODE(C12)						
13											
14	What Does It Do?										
15	This function shows the ANSI value of a single character, or the first character in a piece										
16	of text.										
17	The ANSI character set is used by Windows to identify each keyboard character by using										
18	a unique number.										
19	There are 255 characters in the ANSI set.										
20											
21	Syntax										
22	=CODE(Text)										
23											
24	Formatting										
25	No special formatting is needed, the result will be shown as a number between 1 and 255.										
26											
27	Example										
28	See the example for FREQUENCY.										
29											
30	1	26	51 3	76 L	101 e	126 ~	151 —	176 °	201 É	226 à	251 ù
31	2	27	52 4	77 M	102 f	127 DEL	152 ~	177 ±	202 Ê	227 á	252 ú
32	3	28	53 5	78 N	103 g	128 €	153 ™	178 ²	203 Ë	228 â	253 ý
33	4	29	54 6	79 O	104 h	129 †	154 š	179 ³	204 Ì	229 ã	254 þ
34	5	30	55 7	80 P	105 i	130 ,	155 ›	180 ´	205 Í	230 æ	255 ÿ
35	6	31	56 8	81 Q	106 j	131 f	156 œ	181 μ	206 Î	231 ç	
36	7	32	57 9	82 R	107 k	132 „	157	182 ¶	207 Ï	232 è	
37	8	33 !	58 :	83 S	108 l	133 …	158 ž	183 ·	208 Ð	233 é	
38	9	34 "	59 ;	84 T	109 m	134 †	159 Ÿ	184 „	209 Ñ	234 ê	
39	10	35 #	60 <	85 U	110 n	135 ‡	160	185 ´	210 Ò	235 ë	
40	11	36 \$	61 =	86 V	111 o	136 ^	161 ¡	186 °	211 Ó	236 ì	
41	12	37 %	62 >	87 W	112 p	137 ‰	162 ¢	187 »	212 Ô	237 í	
42	13	38 &	63 ?	88 X	113 q	138 Š	163 £	188 ¼	213 Õ	238 î	
43	14	39 '	64 @	89 Y	114 r	139 <	164 ¤	189 ½	214 Ö	239 ï	
44	15	40 (	65 A	90 Z	115 s	140 Œ	165 ¥	190 ¾	215 ×	240 ð	
45	16	41)	66 B	91 [	116 t	141	166 !	191 ¿	216 Ø	241 ñ	
46	17	42 *	67 C	92 \	117 u	142 Ž	167 §	192 À	217 Ù	242 ò	
47	18	43 +	68 D	93]	118 v	143 ☞	168 ¨	193 Á	218 Ú	243 ó	
48	19	44 ,	69 E	94 ^	119 w	144 ☛	169 ©	194 Â	219 Û	244 ô	
49	20	45 -	70 F	95 _	120 x	145 ´	170 ª	195 Ã	220 Ü	245 õ	
50	21	46 .	71 G	96 `	121 y	146 ´	171 «	196 Ä	221 Ý	246 ö	
51	22	47 /	72 H	97 a	122 z	147 “	172 ¬	197 Å	222 Þ	247 ÷	
52	23	48 0	73 I	98 b	123 {	148 ”	173 -	198 Æ	223 ß	248 ø	
53	24	49 1	74 J	99 c	124 |	149 •	174 ®	199 Ç	224 à	249 ù	
54	25	50 2	75 K	100 d	125 }	150 -	175 -	200 È	225 á	250 ú	
55											

	A	B	C	D	E	F	G
1	COMBIN						
2							
3			Pool Of Items	Items In A Group	Possible Groups		
4			4	2	6	=COMBIN(C4,D4)	
5			4	3	4	=COMBIN(C5,D5)	
6			26	2	325	=COMBIN(C6,D6)	
7							
8	What Does It Do ?						
9	This function calculates the highest number of combinations available based upon						
10	a fixed number of items.						
11	The internal order of the combination does not matter, so AB is the same as BA.						
12							
13	Syntax						
14	=COMBIN(HowManyItems,GroupSize)						
15							
16	Formatting						
17	No special formatting is required.						
18							
19							
20	Example 1						
21	This example calculates the possible number of pairs of letters available						
22	from the four characters ABCD.						
23							
24			Total Characters	Group Size	Combinations		
25			4	2	6	=COMBIN(C25,D25)	
26							
27			The proof !	The four letters : ABCD			
28				Pair 1	AB		
29				Pair 2	AC		
30				Pair 3	AD		
31				Pair 4	BC		
32				Pair 5	BD		
33				Pair 6	CD		
34							
35	Example 2						
36	A decorator is asked to design a colour scheme for a new office.						
37	The decorator is given five colours to work with, but can only use three in any scheme.						
38	How many colours schemes can be created ?						
39							
40			Available Colours	Colours Per Scheme	Totals Schemes		
41			5	3	10	=COMBIN(C41,D41)	
42							
43			The colours				
44			Red				
45			Green				
46			Blue				
47			Yellow				
48			Black				
49							
50			Scheme 1	Scheme 2	Scheme 3	Scheme 4	Scheme 5
51			Red	Red	Red	Red	Red
52			Green	Green	Green	Blue	Blue
53			Blue	Yellow	Black	Yellow	Black
54							
55			Scheme 6	Scheme 7	Scheme 8	Scheme 9	Scheme 10
56			Green	Green	Green	Blue	??????

	A	B	C	D	E	F	G
57			Blue	Blue	Yellow	Yellow	
58			Yellow	Black	Black	Black	

	A	B	C	D	E	F	G	H	I
1	CONCATENATE								
2									
3			Name 1	Name 2	Concatenated Text				
4			Alan	Jones	AlanJones	=CONCATENATE(C4,D4)			
5			Bob	Williams	BobWilliams	=CONCATENATE(C5,D5)			
6			Carol	Davies	CarolDavies	=CONCATENATE(C6,D6)			
7			Alan	Jones	Alan Jones	=CONCATENATE(C7," ",D7)			
8			Bob	Williams	Williams, Bob	=CONCATENATE(D8," ",C8)			
9			Carol	Davies	Davies, Carol	=CONCATENATE(D9," ",C9)			
10									
11	What Does It Do?								
12	This function joins separate pieces of text into one item.								
13									
14	Syntax								
15	=CONCATENATE(Text1,Text2,Text3...Text30)								
16	Up to thirty pieces of text can be joined.								
17									
18	Formatting								
19	No special formatting is needed, the result will be shown as normal text.								
20									
21	Note								
22	You can achieve the same result by using the & operator.								
23									
24			Name 1	Name 2	Concatenated Text				
25			Alan	Jones	AlanJones	=C25&D25			
26			Bob	Williams	BobWilliams	=C26&D26			
27			Carol	Davies	CarolDavies	=C27&D27			
28			Alan	Jones	Alan Jones	=C28&" "&D28			
29			Bob	Williams	Williams, Bob	=D29&" "&C29			
30			Carol	Davies	Davies, Carol	=D30&" "&C30			

	A	B	C	D	E	F	G	H
1	CONVERT							
2								
3			Amount To Convert	Converting From	Converting To	Converted Amount		
4			1	in	cm	2.54	=CONVERT(C4,D4,E4)	
5			1	ft	m	0.3048	=CONVERT(C5,D5,E5)	
6			1	yd	m	0.9144	=CONVERT(C6,D6,E6)	
7								
8			1	yr	day	365.25	=CONVERT(C8,D8,E8)	
9			1	day	hr	24	=CONVERT(C9,D9,E9)	
10			1.5	hr	mn	90	=CONVERT(C10,D10,E10)	
11			0.5	mn	sec	30	=CONVERT(C11,D11,E11)	
12								
13	What Does It Do ?							
14	This function converts a value measure in one type of unit, to the same value expressed							
15	in a different type of unit, such as Inches to Centimetres.							
16								
17	Syntax							
18	=CONVERT(AmountToConvert,UnitToConvertFrom,UnitToConvertTo)							
19								
20	Formatting							
21	No special formatting is needed.							
22								
23	Example							
24	The following table was used by an Import / Exporting company to convert the weight							
25	and size of packages from old style UK measuring system to European system.							
26								
27				Pounds	Ounces	Kilograms		
28		Weight	5	3	2.3530101			
29			=CONVERT(D28,"lbm","kg")+CONVERT(E28,"ozm","kg")					
30								
31				Feet	Inches	Metres		
32		Height	12	6	3.81			
33		Length	8	3	2.5146			
34		Width	5	2	1.5748			
35			=CONVERT(D34,"ft","m")+CONVERT(E34,"in","m")					
36								
37	Abbreviations							
38	This is a list of all the possible abbreviations which can be used to denote measuring systems.							
39								
40	Weight & Mass			Distance				
41	Gram	g		Meter	m			
42	Kilogram	kg		Statute mile	mi			
43	Slug	sg		Nautical mile	Nmi			
44	Pound mass	lbm		Inch	in			
45	U (atomic mass)	u		Foot	ft			
46	Ounce mass	ozm		Yard	yd			
47				Angstrom	ang			
48	Time			Pica (1/72 in.)	Pica			
49	Year	yr						
50	Day	day		Pressure				
51	Hour	hr		Pascal	Pa			
52	Minute	mn		Atmosphere	atm			
53	Second	sec		mm of Mercury	mmHg			

	A	B	C	D	E	F	G	H
54								
55		Temperature			Liquid			
56		Degree Celsius	C		Teaspoon	tsp		
57		Degree Fahrenheit	F		Tablespoon	tbs		
58		Degree Kelvin	K		Fluid ounce	oz		
59					Cup	cup		
60		Force			Pint	pt		
61		Newton	N		Quart	qt		
62		Dyne	dyn		Gallon	gal		
63		Pound force	lbf		Liter	l		
64								
65		Energy			Power			
66		Joule	J		Horsepower	HP		
67		Erg	e		Watt	W		
68		Thermodynamic calorie	c					
69		IT calorie	cal		Magnetism			
70		Electron volt	eV		Tesla	T		
71		Horsepower-hour	HPH		Gauss	ga		
72		Watt-hour	Wh					
73		Foot-pound	flb					
74		BTU	BTU					
75								
76								
77		These characters can be used as a prefix to access further units of measure.						
78		Using "c" as a prefix to meters "m" will allow centimetres "cm" to be calculated.						
79								
80		Prefix	Multiplier	Abbreviation		Prefix	Multiplier	Abbreviation
81		exa	1.00E+18	E		deci	1.00E-01	d
82		peta	1.00E+15	P		centi	1.00E-02	c
83		tera	1.00E+12	T		milli	1.00E-03	m
84		giga	1.00E+09	G		micro	1.00E-06	u
85		mega	1.00E+06	M		nano	1.00E-09	n
86		kilo	1.00E+03	k		pico	1.00E-12	p
87		hecto	1.00E+02	h		femto	1.00E-15	f
88		deka	1.00E+01	e		atto	1.00E-18	a

	A	B	C	D	E	F	G	H	I	J
1	CORREL									
2										
3			Table 1				Table 2			
4			Month	Avg Temp	Air Cond Sales		Advertising Costs	Sales		
5			Jan	20	100		£2,000	£20,000		
6			Feb	30	200		£1,000	£30,000		
7			Mar	30	300		£5,000	£20,000		
8			Apr	40	200		£1,000	£40,000		
9			May	50	400		£8,000	£40,000		
10			Jun	50	400		£1,000	£20,000		
11										
12			Correlation		0.864		Correlation		28%	
13			=CORREL(D5:D10,E5:E10)				=CORREL(G5:G10,H5:H10)			
14										
15	What Does It Do ?									
16	This function examines two sets of data to determine the degree of relationship									
17	between the two sets.									
18	The result will be a decimal between 0 and 1.									
19	The larger the result, the greater the correlation.									
20										
21	In Table 1 the Monthly temperature is compared against the Sales of air conditioning units.									
22	The correlation shows that there is an 0.864 relationship between the data.									
23										
24	In Table 2 the Cost of advertising has been compared to Sales.									
25	It can be formatted as percentage % to show a more meaning full result.									
26	The correlation shows that there is an 28% relationship between the data.									
27										
28	Syntax									
29	=CORREL(Range1,Range2)									
30										
31	Formatting									
32	The result will normally be shown in decimal format.									

	A	B	C	D	E	F	G	H	I	J	
1	COUNT										
2											
3			Entries To Be Counted			Count					
4			10	20	30	3	=COUNT(C4:E4)				
5			10	0	30	3	=COUNT(C5:E5)				
6			10	-20	30	3	=COUNT(C6:E6)				
7			10	1-Jan-88	30	3	=COUNT(C7:E7)				
8			10	21:30	30	3	=COUNT(C8:E8)				
9			10	0.7271991	30	3	=COUNT(C9:E9)				
10			10		30	2	=COUNT(C10:E10)				
11			10	Hello	30	2	=COUNT(C11:E11)				
12			10	#DIV/0!	30	2	=COUNT(C12:E12)				
13											
14	What Does It Do ?										
15	This function counts the number of numeric entries in a list.										
16	It will ignore blanks, text and errors.										
17											
18	Syntax										
19	=COUNT(Range1,Range2,Range3... through to Range30)										
20											
21	Formatting										
22	No special formatting is needed.										
23											
24	Example										
25	The following table was used by a builders merchant to calculate the number of sales										
26	for various products in each month.										
27											
28			Item	Jan	Feb	Mar					
29			Bricks	£1,000							
30			Wood		£5,000						
31			Glass	£2,000	£1,000						
32			Metal	£1,000							
33			Count	3	2	0					
34	=COUNT(D29:D32)										

	A	B	C	D	E	F	G	H	I	J	
1	COUNTA										
2											
3			Entries To Be Counted			Count					
4			10	20	30	3	=COUNTA(C4:E4)				
5			10	0	30	3	=COUNTA(C5:E5)				
6			10	-20	30	3	=COUNTA(C6:E6)				
7			10	1-Jan-88	30	3	=COUNTA(C7:E7)				
8			10	21:30	30	3	=COUNTA(C8:E8)				
9			10	0.5087318	30	3	=COUNTA(C9:E9)				
10			10		30	2	=COUNTA(C10:E10)				
11			10	Hello	30	3	=COUNTA(C11:E11)				
12			10	#DIV/0!	30	3	=COUNTA(C12:E12)				
13											
14	What Does It Do ?										
15	This function counts the number of numeric or text entries in a list.										
16	It will ignore blanks.										
17											
18	Syntax										
19	=COUNTA(Range1,Range2,Range3... through to Range30)										
20											
21	Formatting										
22	No special formatting is needed.										
23											
24	Example										
25	The following table was used by a school to keep track of the examinations taken by each pupil.										
26	Each exam passed was graded as 1, 2 or 3.										
27	A failure was entered as Fail.										
28											
29	The school needed to know how many pupils sat each exam.										
30	The school also needed to know how many exams were taken by each pupil.										
31											
32	The =COUNTA() function has been used because of its ability to count text and numeric entries.										
33											
34			Maths	English	Art	History			Exams Taken By Each Pupil		
35		Alan	Fail		1				2		
36		Bob	2	1	3				3		
37		Carol		1	1	1			3		
38		David	Fail		Fail				2		
39		Elaine	1	3	2	Fail			4		
40									=COUNTA(D39:G39)		
41			How many pupils sat each Exam.								
42			Maths	English	Art	History					
43			4	3	5	2					
44			=COUNTA(D35:D39)								

	A	B	C	D	E	F	G	H	I
1	COUNTBLANK								
2									
3			Range To Test		Blanks				
4			1		2	=COUNTBLANK(C4:C11)			
5			Hello						
6			3						
7			0						
8									
9			1-Jan-98						
10									
11			5						
12									
13	What Does It Do ?								
14	This function counts the number of blank cells in a range.								
15									
16	Syntax								
17	=COUNTBLANK(RangeToTest)								
18									
19	Formatting								
20	No special formatting is needed.								
21									
22	Example								
23	The following table was used by a company which was balloting its workers on whether								
24	the company should have a no smoking policy.								
25	Each of the departments in the various factories were questioned.								
26	The response to the question could be Y or N.								
27	As the results of the vote were collated they were entered in to the table.								
28	The =COUNTBLANK() function has been used to calculate the number of departments which								
29	have no yet registered a vote.								
30									
31			Admin	Accounts	Production	Personnel			
32	Factory 1		Y	N					
33	Factory 2			Y	Y	N			
34	Factory 3								
35	Factory 4		N		N	N			
36	Factory 5		Y		Y				
37	Factory 6		Y	Y	Y	N			
38	Factory 7			N	Y				
39	Factory 8		N	N	Y	Y			
40	Factory 9				Y				
41	Factory 10		Y	N		Y			
42									
43			Votes not vet registered :		16	=COUNTBLANK(C32:F41)			
44									
45			Votes for Yes :		14	=COUNTIF(C32:F41,"Y")			
46									
47			Votes for No :		10	=COUNTIF(C32:F41,"N")			

	A	B	C	D	E	F	G
1	COUNTIF						
2	<hr/>						
3			Item	Date	Cost		
4			Brakes	1-Jan-98	80		
5			Tyres	10-May-98	25		
6			Brakes	1-Feb-98	80		
7			Service	1-Mar-98	150		
8			Service	5-Jan-98	300		
9			Window	1-Jun-98	50		
10			Tyres	1-Apr-98	200		
11			Tyres	1-Mar-98	100		
12			Clutch	1-May-98	250		
13	<hr/>						
14	How many Brake Shoes Have been bought.					2	=COUNTIF(C4:C12,"Brakes")
15	How many Tyres have been bought.					3	=COUNTIF(C4:C12,"Tyres")
16	How many items cost £100 or above.					5	=COUNTIF(E4:E12,">=100")
17	<hr/>						
18	Type the name of the item to count.				service	2	=COUNTIF(C4:C12,E18)
19	<hr/>						
20	<hr/>						
21	What Does It Do ?						
22	This function counts the number of items which match criteria set by the user.						
23	<hr/>						
24	Syntax						
25	=COUNTIF(RangeOfThingsToBeCounted,CriteriaToBeMatched)						
26	The criteria can be typed in any of the following ways.						
27	To match a specific number type the number, such as =COUNTIF(A1:A5,100)						
28	To match a piece of text type the text in quotes, such as =COUNTIF(A1:A5,"Hello")						
29	To match using operators surround the expression with quotes, such as =COUNTIF(A1:A5,">100")						
30	<hr/>						
31	Formatting						
32	No special formatting is needed.						

	A	B	C	D	E	F	G	H	I	J
1	DATE									
2										
3			Day	Month	Year	Date				
4			25	12	99	12/25/99	=DATE(E4,D4,C4)			
5			25	12	99	25-Dec-99	=DATE(E5,D5,C5)			
6			33	12	99	January 2, 2000	=DATE(E6,D6,C6)			
7										
8	What Does It Do?									
9	This function creates a real date by using three normal numbers typed into separate cells.									
10										
11	Syntax									
12	=DATE(year,month,day)									
13										
14	Formatting									
15	The result will normally be displayed in the dd/mm/yy format.									
16	By using the Format,Cells,Number,Date command the format can be changed.									

	A	B	C	D	E	F	G	H	I	J	K	
1	DATEDIF											
2												
3			FirstDate	SecondDate	Interval	Difference						
4			1-Jan-60	10-May-70	days	#NAME?	=DATEDIF(C4,D4,"d")					
5			1-Jan-60	10-May-70	months	#NAME?	=DATEDIF(C5,D5,"m")					
6			1-Jan-60	10-May-70	years	#NAME?	=DATEDIF(C6,D6,"y")					
7			1-Jan-60	10-May-70	yeardays	#NAME?	=DATEDIF(C7,D7,"yd")					
8			1-Jan-60	10-May-70	yearmonths	#NAME?	=DATEDIF(C8,D8,"ym")					
9			1-Jan-60	10-May-70	monthdays	#NAME?	=DATEDIF(C9,D9,"md")					
10												
11	What Does It Do?											
12	This function calculates the difference between two dates.											
13	It can show the result in weeks, months or years.											
14												
15	Syntax											
16	=DATEDIF(FirstDate,SecondDate,"Interval")											
17	FirstDate : This is the earliest of the two dates.											
18	SecondDate : This is the most recent of the two dates.											
19	"Interval" : This indicates what you want to calculate.											
20	These are the available intervals.											
21			"d"	Days between the two dates.								
22			"m"	Months between the two dates.								
23			"y"	Years between the two dates.								
24			"yd"	Days between the dates, as if the dates were in the same year.								
25			"ym"	Months between the dates, as if the dates were in the same year.								
26			"md"	Days between the two dates, as if the dates were in the same month and year.								
27												
28	Formatting											
29	No special formatting is needed.											
30												
31												
32												
33												
34			Birth date :	1-Jan-60								
35												
36			Years lived :	#NAME?	=DATEDIF(C8,TODAY(),"y")							
37			and the month	#NAME?	=DATEDIF(C8,TODAY(),"ym")							
38			and the days :	#NAME?	=DATEDIF(C8,TODAY(),"md")							
39												
40	You can put this all together in one calculation, which creates a text version.											
41			#NAME?									
42	="Age is "&DATEDIF(C8,TODAY(),"y")&" Years, "&DATEDIF(C8,TODAY(),"ym")&" Months and "&DATEDIF(C8,TODAY(),"md")&" Days"											

	A	B	C	D	E	F	G	H
1	DATEVALUE							
2								
3			Date	Date Value				
4			25-dec-99	36519	=DATEVALUE(C4)			
5			25/12/99	Err:502	=DATEVALUE(C5)			
6			25-dec-99	36519	=DATEVALUE(C6)			
7			25/12/99	Err:502	=DATEVALUE(C7)			
8								
9	What Does It Do?							
10	The function is used to convert a piece of text into a date which can be used in calculations.							
11	Dates expressed as text are often created when data is imported from other programs, such as							
12	exports from mainframe computers.							
13								
14	Syntax							
15	=DATEVALUE(text)							
16								
17	Formatting							
18	The result will normally be shown as a number which represents the date. This number can							
19	be formatted to any of the normal date formats by using Format,Cells,Number,Date.							
20								
21	Example							
22	The example uses the =DATEVALUE and the =TODAY functions to calculate the number of							
23	days remaining on a property lease.							
24								
25	The =DATEVALUE function was used because the date has been entered in the cell as							
26	a piece of text, probably after being imported from an external program.							
27								
28			Property Ref.	Expiry Date	Days Until Expiry			
29			BC100	25-dec-99	-5733			
30			FG700	10-july/99	Err:502			
31			TD200	13-sep-98	-6201			
32			HJ900	30/5/2000	Err:502			
33					=DATEVALUE(E32)-TODAY()			

1	DAVERAGE								
2	<i>This is the Database range.</i>								
3	Product	Wattage	Life Hours	Brand	Unit Cost	Box Quantity	Boxes In Stock	Value Of Stock	
4	Bulb	200	3000	Horizon	£4.50	4	3	£54.00	
5	Neon	100	2000	Horizon	£2.00	15	2	£60.00	
6	Spot	60						£0.00	
7	Other	10	8000	Sunbeam	£0.80	25	6	£120.00	
8	Bulb	80	1000	Horizon	£0.20	40	3	£24.00	
9	Spot	100	unknown	Horizon	£1.25	10	4	£50.00	
10	Spot	200	3000	Horizon	£2.50	15	0	£0.00	
11	Other	25	unknown	Sunbeam	£0.50	10	3	£15.00	
12	Bulb	200	3000	Sunbeam	£5.00	3	2	£30.00	
13	Neon	100	2000	Sunbeam	£1.80	20	5	£180.00	
14	Bulb	100	unknown	Sunbeam	£0.25	10	5	£12.50	
15	Bulb	10	800	Horizon	£0.20	25	2	£10.00	
16	Bulb	60	1000	Sunbeam	£0.15	25	0	£0.00	
17	Bulb	80	1000	Sunbeam	£0.20	30	2	£12.00	
18	Bulb	100	2000	Horizon	£0.80	10	5	£40.00	
19	Bulb	40	1000	Horizon	£0.10	20	5	£10.00	
20									
21	To calculate the Average cost of a particular Brand of bulb.								
22									
23				Brand	<i>These two cells are the Criteria range.</i>				
24	Type the brand name :			sunbeam					
25									
26	The Average cost of sunbeam is :			£1.24	=DAVERAGE(B3:I19,F3,E23:E24)				
27									
28	What Does It Do ?								
29	This function examines a list of information and produces and average.								
30									
31	Syntax								
32	=DAVERAGE(DatabaseRange,FieldName,CriteriaRange)								
33	The DatabaseRange is the entire list of information you need to examine, including the								
34	field names at the top of the columns.								
35	The FieldName is the name, or cell, of the values to be averaged, such as "Unit Cost" or F3.								
36	The CriteriaRange is made up of two types of information.								
37	The first set of information is the name, or names, of the Fields(s) to be used as the basis								
38	for selecting the records, such as the category Brand or Wattage.								
39	The second set of information is the actual record, or records, which are to be selected, such								
40	as Horizon as a brand name, or 100 as the wattage.								
41									
42	Formatting								
43	No special formatting is needed.								
44									
45	Examples								
46									
47	The average Unit Cost of a particular Product of a particular Brand.								
48									
49				Product	Brand				
50				Bulb	Horizon				
51									

	A	B	C	D	E	F	G	H	I	J
52		The average of Horizon Bulb is :			£1.16	=DAVERAGE(B3:I19,F3,E49:F50)				
53										
54		This is the same calculation but using the actual name "Unit Cost" instead of the cell address.								
55										
56					£1.16	=DAVERAGE(B3:I19,"Unit Cost",E49:F50)				
57										
58		The average Unit Cost of a Bulb equal to a particular Wattage.								
59										
60					Product	Wattage				
61					Bulb	100				
62										
63		Average of Bulb 100 is :			£0.53	=DAVERAGE(B3:I19,"Unit Cost",E60:F61)				
64										
65		The average Unit Cost of a Bulb less then a particular Wattage.								
66										
67					Product	Wattage				
68					Bulb	<100				
69										
70		Average of Bulb <100 is :			£0.17	=DAVERAGE(B3:I19,"Unit Cost",E67:F68)				

	A	B	C	D	E	F	G	H
1	DAY							
2								
3			Full Date	The Day				
4			25-Dec-98	25	=DAY(C4)			
5			5-Sep-15	Thu 4	=DAY(C5)			
6			5-Sep-15	5	=DAY(C6)			
7								
8	What Does It Do?							
9	This function extracts the day of the month from a complete date.							
10								
11	Syntax							
12	=DAY(value)							
13								
14	Formatting							
15	Normally the result will be a number, but this can be formatted to show the actual							
16	day of the week by using Format,Cells,Number,Custom and using the code ddd or dddd.							
17								
18	Example							
19	The =DAY function has been used to calculate the name of the day for your birthday.							
20								
21	Please enter your date of birth in the format dd/mm/yy :					3/25/1962		
22	You were born on :					Wednesday 24	=DAY(F21)	

	A	B	C	D	E	F
1	DAY360					
2						
3			StartDate	EndDate	Days Between	<i>* See the Note below.</i>
4			1-Jan-98	5-Jan-98	4	=DAY360(C4,D4,TRUE)
5			1-Jan-98	1-Feb-98	30	=DAY360(C5,D5,TRUE)
6			1-Jan-98	31-Mar-98	89	=DAY360(C6,D6,TRUE)
7			1-Jan-98	31-Dec-98	359	=DAY360(C7,D7,TRUE)
8						
9	What Does It Do?					
10	Shows the number of days between two dates based on a 360-day year (twelve 30-day months).					
11	Use this function if your accounting system is based on twelve 30-day months.					
12						
13	Syntax					
14	=DAY360(StartDate,EndDate,TRUE of FALSE)					
15	TRUE : Use this for European accounting systems.					
16	FALSE : Use this for USA accounting systems.					
17						
18	Formatting					
19	The result will be shown as a number.					
20						
21	Note					
22	The calculation does not include the last day. The result of using 1-Jan-98 and 5-Jan-98 will					
23	give a result of 4. To correct this add 1 to the result. =DAY360(Start,End,TRUE)+1					

	A	B	C	D	E	F	G	H	I
1	DB								
2									
3			Purchase Price :		£5,000				
4			Life in Years :		5				
5			Salvage value :		£200				
6									
7				Year	Depreciation				
8				1	£2,375.00	=DB(E3,E5,E4,D8)			
9				2	£1,246.88	=DB(E3,E5,E4,D9)			
10				3	£654.61	=DB(E3,E5,E4,D10)			
11				4	£343.67	=DB(E3,E5,E4,D11)			
12				5	£180.43	=DB(E3,E5,E4,D12)			
13									
14			Total Depreciation :		£4,800.58	* See example 4 below.			
15									
16	What Does It Do ?								
17	This function calculates depreciation based upon a fixed percentage.								
18	The first year is depreciated by the fixed percentage.								
19	The second year uses the same percentage, but uses the original value of the item less								
20	the first years depreciation.								
21	Any subsequent years use the same percentage, using the original value of the item less								
22	the depreciation of the previous years.								
23	The percentage used in the depreciation is not set by the user, the function calculates								
24	the necessary percentage, which will be vary based upon the values inputted by the user.								
25									
26	An additional feature of this function is the ability to take into account when the item was								
27	originally purchased.								
28	If the item was purchased part way through the financial year, the first years depreciation								
29	will be based on the remaining part of the year.								
30									
31	Syntax								
32	=DB(PurchasePrice,SalvageValue,Life,PeriodToCalculate,FirstYearMonth)								
33	The FirstYearMonth is the month in which the item was purchased during the								
34	first financial year. This is an optional value, if it not used the function will assume 12 as								
35	the value.								
36									
37	Formatting								
38	No special formatting is needed.								
39									
40	Example 1								
41	This example shows the percentage used in the depreciation.								
42	Year 1 depreciation is based upon the original Purchase Price alone.								
43	Year 2 depreciation is based upon the original Purchase Price minus Year 1 depreciation.								
44	Year 3 depreciation is based upon original Purchase Price minus Year 1 + Year 2 depreciation.								
45	The % Deprc has been calculated purely to demonstrate what % is being used.								
46									
47			Purchase Price :		£5,000				
48			Salvage value :		£1,000				
49			Life in Years :		5				
50									
51				Year	Depreciation		% Deprc		
52				1	£1,375.00		27.50%		
53				2	£996.88		27.50%		
54				3	£722.73		27.50%		

	A	B	C	D	E	F	G	H	I
55				4	£523.98		27.50%		
56				5	£379.89		27.50%		
57					=DB(E47,E48,E49,D56)				
58									
59			Total Depreciation :		£3,998.48				
60									
61									
62	Example 2								
63	This example is similar to the previous, with the exception of the depreciation being calculated								
64	on a monthly basis. This has been done by multiplying the years by 12.								
65									
66			Purchase Price :		£5,000				
67			Life in Years :		£5				
68			Salvage value :		100				
69									
70				Month	Deprecation				
71				56	£8.79				
72				57	£8.24				
73				58	£7.72				
74				59	£7.23				
75				60	£6.78				
76					=DB(E66,E68,E67*12,D75)				
77									
78									
79	Example 3								
80	This example shows how the length of the first years ownership has been taken into account.								
81									
82			Purchase Price :		£5,000				
83			Life in Years :		5				
84			Salvage value :		£1,000				
85			First Year Ownership In Months :		6				
86									
87				Year	Deprecation		% Deprc		
88				1	£687.50		13.75%		
89				2	£1,185.94		27.50%		
90				3	£859.80		27.50%		
91				4	£623.36		27.50%		
92				5	£451.93		27.50%		
93					=DB(E74,E76,E75,D84,E77)				
94									
95			Total Depreciation :		£3,808.54				
96									
97									
98	Why Is The Answer Wrong ?								
99	In all of the examples above the total depreciation may not be exactly the expected value.								
100	This is due to the way in which the percentage value for the depreciation has been calculated								
101	by the =DB() function.								
102	The percentage rate is calculated by Execl using the formula = 1 - ((salvage / cost) ^ (1 / life)).								
103	The result of this calculation is then rounded to three decimal places.								
104	Although this rounding may only make a minor change to the percentage rate, when applied								
105	to large values, the diffrence is compounded resulting in what could be considered as								
106	approximate values for the the depreceation.								
107									
108	Example 4								

	A	B	C	D	E	F	G	H	I	
109		This example has been created with both the Excel calculated percentage and the 'real'								
110		percentage calculated manually.								
111		The Excel Deprecation uses the =DB() function.								
112		The Real Deprecation uses a manual calculation.								
113										
114		This is the 'real' depreciation percentage, calculated manually :						27.522034%		
115								=1-((E117/E116)^(1/E118))		
116		Purchase Price :		£5,000		= 1 - ((salvage / cost) ^ (1 / life)).				
117		Salvage value :		£1,000						
118		Life in Years :		5						
119										
120				Year	Excel Deprecation	Real Deprecation		Excel % Deprc		
121				1	£1,375.0000	£1,376.1017		27.500%		
122				2	£996.8750	£997.3705		27.500%		
123				3	£722.7344	£722.8739		27.500%		
124				4	£523.9824	£523.9243		27.500%		
125				5	£379.8873	£379.7297		27.500%		
126										
127		Total Depreciation :		£3,998.48	£4,000.00					
128										
129		Error difference :				£1.52				

	A	B	C	D	E	F	G	H	I	J
1	DCOUNT									
2							<i>This is the Database range.</i>			
3		Product	Wattage	Life Hours	Brand	Unit Cost	Box Quantity	Boxes In Stock	Value Of Stock	
4		Bulb	200	3000	Horizon	£4.50	4	3	£54.00	
5		Neon	100	2000	Horizon	£2.00	15	2	£60.00	
6		Spot	60						£0.00	
7		Other	10	8000	Sunbeam	£0.80	25	6	£120.00	
8		Bulb	80	1000	Horizon	£0.20	40	3	£24.00	
9		Spot	100	unknown	Horizon	£1.25	10	4	£50.00	
10		Spot	200	3000	Horizon	£2.50	15	1	£37.50	
11		Other	25	unknown	Sunbeam	£0.50	10	3	£15.00	
12		Bulb	200	3000	Sunbeam	£5.00	3	2	£30.00	
13		Neon	100	2000	Sunbeam	£1.80	20	5	£180.00	
14		Bulb	100	unknown	Sunbeam	£0.25	10	5	£12.50	
15		Bulb	10	800	Horizon	£0.20	25	2	£10.00	
16		Bulb	60	1000	Sunbeam	£0.15	25	1	£3.75	
17		Bulb	80	1000	Sunbeam	£0.20	30	2	£12.00	
18		Bulb	100	2000	Horizon	£0.80	10	5	£40.00	
19		Bulb	40	1000	Horizon	£0.10	20	5	£10.00	
20										
21		Count the number of products of a particular Brand which have a Life Hours rating.								
22										
23					Brand	<i>These two cells are the Criteria range.</i>				
24		Type the brand name :			Horizon					
25										
26		The COUNT value of Horizon is :			7	=DCOUNT(B3:I19,D3,E23:E24)				
27										
28		What Does It Do ?								
29		This function examines a list of information and counts the values in a specified column.								
30		It can only count values, the text items and blank cells are ignored.								
31										
32		Syntax								
33		=DCOUNT(DatabaseRange,FieldName,CriteriaRange)								
34		The DatabaseRange is the entire list of information you need to examine, including the								
35		field names at the top of the columns.								
36		The FieldName is the name, or cell, of the values to Count, such as "Value Of Stock" or I3.								
37		The CriteriaRange is made up of two types of information.								
38		The first set of information is the name, or names, of the Fields(s) to be used as the basis								
39		for selecting the records, such as the category Brand or Wattage.								
40		The second set of information is the actual record, or records, which are to be selected, such								
41		as Horizon as a brand name, or 100 as the wattage.								
42										
43		Formatting								
44		No special formatting is needed.								
45										
46		Examples								
47										
48		The count of a particular product, with a specific number of boxes in stock.								
49										
50					Product		Boxes In Stock			

	A	B	C	D	E	F	G	H	I	J
51					Bulb	5				
52										
53		The number of products is :			3	=DCOUNT(B3:I19,H3,E50:F51)				
54										
55		This is the same calculation but using the name "Boxes In Stock" instead of the cell address.								
56										
57					3	=DCOUNT(B3:I19,"Boxes In Stock",E50:F51)				
58										
59		The count of the number of Bulb products equal to a particular Wattage.								
60										
61					Product	Wattage				
62					Bulb	100				
63										
64		The count is :			2	=DCOUNT(B3:I19,"Boxes In Stock",E61:F62)				
65										
66		The count of Bulb products between two Wattage values.								
67										
68					Product	Wattage	Wattage			
69					Bulb	>=80	<=100			
70										
71		The count is :			4	=DCOUNT(B3:I19,"Boxes In Stock",E68:G69)				

1	DCOUNTA								
2	<i>This is the Database range.</i>								
3	Product	Wattage	Life Hours	Brand	Unit Cost	Box Quantity	Boxes In Stock	Value Of Stock	
4	Bulb	200	3000	Horizon	£4.50	4	3	£54.00	
5	Neon	100	2000	Horizon	£2.00	15	2	£60.00	
6	Spot	60						£0.00	
7	Other	10	8000	Sunbeam	£0.80	25	6	£120.00	
8	Bulb	80	1000	Horizon	£0.20	40	3	£24.00	
9	Spot	100	unknown	Horizon	£1.25	10	4	£50.00	
10	Spot	200	3000	Horizon	£2.50	15	1	£37.50	
11	Other	25	unknown	Sunbeam	£0.50	10	3	£15.00	
12	Bulb	200	3000	Sunbeam	£5.00	3	2	£30.00	
13	Neon	100	2000	Sunbeam	£1.80	20	5	£180.00	
14	Bulb	100	unknown	Sunbeam	£0.25	10	5	£12.50	
15	Bulb	10	800	Horizon	£0.20	25	2	£10.00	
16	Bulb	60	1000	Sunbeam	£0.15	25	1	£3.75	
17	Bulb	80	1000	Sunbeam	£0.20	30	2	£12.00	
18	Bulb	100	2000	Horizon	£0.80	10	5	£40.00	
19	Bulb	40	1000	Horizon	£0.10	20	5	£10.00	
20									
21	Count the number of products of a particular Brand.								
22									
23				Brand	<i>These two cells are the Criteria range.</i>				
24	Type the brand name :			Horizon					
25									
26	The COUNT value of Horizon is :			8	=DCOUNTA(B3:I19,E3,E23:E24)				
27									
28	What Does It Do ?								
29	This function examines a list of information and counts the non blank cells in a specified column.								
30	It counts values and text items, but blank cells are ignored.								
31									
32	Syntax								
33	=DCOUNTA(DatabaseRange,FieldName,CriteriaRange)								
34	The DatabaseRange is the entire list of information you need to examine, including the								
35	field names at the top of the columns.								
36	The FieldName is the name, or cell, of the values to Count, such as "Value Of Stock" or I3.								
37	The CriteriaRange is made up of two types of information.								
38	The first set of information is the name, or names, of the Fields(s) to be used as the basis								
39	for selecting the records, such as the category Brand or Wattage.								
40	The second set of information is the actual record, or records, which are to be selected, such								
41	as Horizon as a brand name, or 100 as the wattage.								
42									
43	Formatting								
44	No special formatting is needed.								
45									
46	Examples								
47									
48	The count of a product with an unknown Life Hours value.								
49									
50				Product	Life Hours				
51				Bulb	unknown				

	A	B	C	D	E	F	G	H	I	J
52										
53		The number of products is :			1	=DCOUNTA(B3:I19,D3,E50:F51)				
54										
55		This is the same calculation but using the name "Life Hours" instead of the cell address.								
56										
57					1	=DCOUNTA(B3:I19,"Life Hours",E50:F51)				
58										
59		The count of the number of particular product of a specific brand.								
60										
61					Product	Brand				
62					Bulb	Horizon				
63										
64		The count is :			5	=DCOUNTA(B3:I19,"Product",E61:F62)				
65										
66		The count of particular products from specific brands.								
67										
68					Product	Brand				
69					Spot	Horizon				
70					Neon	Sunbeam				
71										
72		The count is :			3	=DCOUNTA(B3:I19,"Product",E68:F70)				

	A	B	C	D	E	F	G	H
1	DEC2BIN							
2								
3			Decimal Number	Binary Equivalent				
4			0	0	=DEC2BIN(C4)			
5			1	1	=DEC2BIN(C5)			
6			2	10	=DEC2BIN(C6)			
7			3	11	=DEC2BIN(C7)			
8			511	111111111	=DEC2BIN(C8)			
9			512	Err:502	=DEC2BIN(C9)			
10			-1	1111111111	=DEC2BIN(C10)			
11			-2	1111111110	=DEC2BIN(C11)			
12			-3	1111111101	=DEC2BIN(C12)			
13			-511	1000000001	=DEC2BIN(C13)			
14			-512	1000000000	=DEC2BIN(C14)			
15								
16			Decimal Number	Places To Pad	Binary Equivalent			
17			1	1	1	=DEC2BIN(C17,D17)		
18			1	2	01	=DEC2BIN(C18,D18)		
19			1	3	001	=DEC2BIN(C19,D19)		
20			1	9	000000001	=DEC2BIN(C20,D20)		
21			-1	1	1111111111	=DEC2BIN(C21,D21)		
22								
23	What Does It Do ?							
24	This function converts a decimal number to its binary equivalent.							
25	It can only cope with decimals ranging from -512 to 511.							
26	The result can be padded with leading 0 zeros, although this is ignored for negatives.							
27								
28	Syntax							
29	=DEC2BIN(DecimalNumber,PlacesToPad)							
30	The PlacesToPad is optional.							
31								
32	Formatting							
33	No special formatting is needed.							

	A	B	C	D	E	F	G	H
1	DEC2HEX							
2								
3			Decimal Number	Hexadecimal				
4			0	0	=DEC2HEX(C4)			
5			1	1	=DEC2HEX(C5)			
6			2	2	=DEC2HEX(C6)			
7			3	3	=DEC2HEX(C7)			
8			25	19	=DEC2HEX(C8)			
9			26	1A	=DEC2HEX(C9)			
10			27	1B	=DEC2HEX(C10)			
11			28	1C	=DEC2HEX(C11)			
12			-1	FFFFFFFF	=DEC2HEX(C12)			
13			-2	FFFFFFF	=DEC2HEX(C13)			
14			-3	FFFFFFFD	=DEC2HEX(C14)			
15			-2	FFFFFFF	=DEC2HEX(C15)			
16			-1	FFFFFFF	=DEC2HEX(C16)			
17			549,755,813,887	7FFFFFFF	=DEC2HEX(C17)			
18			-549,755,813,888	800000000	=DEC2HEX(C18)			
19			549,755,813,888	800000000	=DEC2HEX(C19)			
20			-549,755,813,889	7FFFFFFF	=DEC2HEX(C20)			
21								
22			Decimal Number	Places To Pad	Hexadecimal			
23			1	1	1	=DEC2HEX(C23,D23)		
24			1	2	01	=DEC2HEX(C24,D24)		
25			26	3	01A	=DEC2HEX(C25,D25)		
26			26	9	0000001A	=DEC2HEX(C26,D26)		
27			-26	1	FFFFFFF6	=DEC2HEX(C27,D27)		
28								
29	What Does It Do ?							
30	This function converts a decimal number to its hexadecimal equivalent.							
31	It can only cope with decimals ranging from -549,755,813,888 to 549,755,813,887.							
32	The result can be padded with leading 0 zeros, although this is ignored for negatives.							
33								
34	Syntax							
35	=DEC2HEX(DecimalNumber,PlacesToPad)							
36	The PlacesToPad is optional.							
37								
38	Formatting							
39	No special formatting is needed.							

	A	B	C	D	E	F	G	H	I	J
1	DELTA									
2										
3			Number1	Number2	Delta					
4			10	20	0	=DELTA(C4,D4)				
5			50	50	1	=DELTA(C5,D5)				
6			17.5	17.5	1	=DELTA(C6,D6)				
7			17.5	18	1	=DELTA(C7,D7)				
8			17.50%	0.175	1	=DELTA(C8,D8)				
9			Hello	Hello		=DELTA(C9,D9)				
10					1	=DELTA(C10,D10)				
11										
12	What Does It Do ?									
13	This function compares two values and tests whether they are exactly the same.									
14	If the numbers are the same the result will be 1, otherwise the result is 0.									
15	It only works with numbers, text values produce a result of #VALUE.									
16	The formatting of the number is not significant, so numbers which appear rounded due									
17	to the removal of decimal places will still match correctly with non rounded values.									
18										
19	Syntax									
20	=DELTA(FirstNumber,SecondNumber)									
21										
22	Formatting									
23	No special formatting is needed.									
24										
25	Example									
26	The following table is used to determine how may pairs of similar numbers are in a list.									
27	The =DELTA() function tests each pair and then the =SUM() function totals them.									
28										
29			Number1	Number2	Delta					
30			10	20	0	=DELTA(C30,D30)				
31			50	50	1	=DELTA(C31,D31)				
32			30	30	1	=DELTA(C32,D32)				
33			17.5	18	1	=DELTA(C33,D33)				
34			12	8	0	=DELTA(C34,D34)				
35			100	100	1	=DELTA(C35,D35)				
36			150	125	0	=DELTA(C36,D36)				
37				Total Pairs	4	=SUM(E30:E36)				

1	DGET										
2							<i>This is the Database range.</i>				
3		Product	Wattage	Life Hours	Brand	Unit Cost	Box Quantity	Boxes In Stock	Value Of Stock		
4		Bulb	200	3000	Horizon	£4.50	4	3	£54.00		
5		Neon	100	2000	Horizon	£2.00	15	2	£60.00		
6		Spot	60						£0.00		
7		Other	10	8000	Sunbeam	£0.80	25	6	£120.00		
8		Bulb	80	1000	Horizon	£0.20	40	3	£24.00		
9		Spot	100	unknown	Horizon	£1.25	10	4	£50.00		
10		Spot	200	3000	Horizon	£2.50	15	1	£37.50		
11		Other	25	unknown	Sunbeam	£0.50	10	3	£15.00		
12		Bulb	200	3000	Sunbeam	£5.00	3	2	£30.00		
13		Neon	100	2000	Sunbeam	£1.80	20	5	£180.00		
14		Bulb	100	unknown	Sunbeam	£0.25	10	5	£12.50		
15		Bulb	10	800	Horizon	£0.20	25	2	£10.00		
16		Bulb	60	1000	Sunbeam	£0.15	25	1	£3.75		
17		Bulb	80	1000	Sunbeam	£0.20	30	2	£12.00		
18		Bulb	100	2000	Horizon	£0.80	10	5	£40.00		
19		Bulb	40	1000	Horizon	£0.10	20	5	£10.00		
20											
21		How many boxes of a particular item do we have in stock?									
22											
23		Product	Wattage	Life Hours	Brand						
24		Bulb	100		Horizon						
25											
26		The number in stock is :					5	=DGET(B3:I19,H3,C23:F24)			
27											
28		What Does It Do ?									
29		This function examines a list of information and produces one result.									
30		If more than one record matches the criteria the error #NUM is shown.									
31		If no records match the criteria the error #VALUE is shown.									
32											
33		Syntax									
34		=DGET(DatabaseRange,FieldName,CriteriaRange)									
35		The DatabaseRange is the entire list of information you need to examine, including the									
36		field names at the top of the columns.									
37		The FieldName is the name, or cell, of the values to Get, such as "Value Of Stock" or I3.									
38		The CriteriaRange is made up of two types of information.									
39		The first set of information is the name, or names, of the Fields(s) to be used as the basis									
40		for selecting the records, such as the category Brand or Wattage.									
41		The second set of information is the actual record which needs to be selected, such									
42		as Horizon as a brand name, or 100 as the wattage.									
43											
44		Formatting									
45		No special formatting is needed.									
46											
47		Example 1									
48		This example extracts information from just one record.									
49											
50		How many boxes of a particular item do we have in stock?									

	A	B	C	D	E	F	G	H	I	J
51										
52			Product	Wattage	Life Hours	Brand				
53			Bulb	100		Horizon				
54										
55			The number in stock is :			5	=DGET(B3:I19,H3,C51:F52)			
56										
57										
58			Example 2							
59			This example extracts information from multiple records and therefore shows the #NUM error.							
60										
61			How many boxes of a particular item do we have in stock?							
62										
63			Product	Wattage	Life Hours	Brand				
64			Bulb	100						
65										
66			The number in stock is :			Err:502	=DGET(B3:I19,H3,C63:F64)			
67										
68										
69			Example 3							
70			This example extracts information from no records and therefore shows the #VALUE error.							
71										
72			How many boxes of a particular item do we have in stock?							
73										
74			Product	Wattage	Life Hours	Brand				
75			Bulb	9999						
76										
77			The number in stock is :			#VALUE!	=DGET(B3:I19,H3,C64:F65)			
78										
79										
80			Example 4							
81			This example uses the =IF() function to display a message when an error occurs.							
82										
83			How many boxes of a particular item do we have in stock?							
84										
85			Product	Wattage	Life Hours	Brand				
86			Bulb	9999						
87										
88			The number in stock is :			#VALUE!	=DGET(B3:I19,H3,C85:F86)			
89										
90						Err:502				
91			=IF(ISERR(F88),CHOOSE(ERROR.TYPE(F88)/3,"No such product. ","Duplicates products found. ","One product found."))							

	A	B	C	D	E	F	G	H	I	J	K
58		The largest Value Of Stock of a Bulb equal to a particular Wattage.									
59											
60					Product	Wattage					
61					Bulb	100					
62											
63		The largest Value Of Stock is :			£40.00	=DMAX(B3:119,"Value Of Stock",E60:F61)					
64											
65		The largest Value Of Stock of a Bulb less than a particular Wattage.									
66											
67					Product	Wattage					
68					Bulb	<100					
69											
70		The largest Value Of Stock is :			£24.00	=DMAX(B3:119,"Value Of Stock",E67:F68)					

	A	B	C	D	E	F	G	H	I	J	K
58		The lowest Value Of Stock of a Bulb equal to a particular Wattage.									
59											
60					Product	Wattage					
61					Bulb	100					
62											
63		The lowest Value Of Stock is :			£12.50	=DMIN(B3:I19,"Value Of Stock",E60:F61)					
64											
65		The lowest Value Of Stock of a Bulb between two Wattage values.									
66											
67					Product	Wattage	Wattage				
68					Bulb	>=80	<=100				
69											
70		The lowest Value Of Stock is :			£12.00	=DMIN(B3:I19,"Value Of Stock",E67:G68)					

	A	B	C	D	E	F	G	H	I	J
1	DOLLAR									
2										
3			Original Number	Converted To Text						
4			10	\$10.00	=DOLLAR(C4)					
5			10	\$10	=DOLLAR(C5,0)					
6			10	\$10.0	=DOLLAR(C6,1)					
7			10	\$10.00	=DOLLAR(C7,2)					
8			10.25	\$10.25	=DOLLAR(C8)					
9			10.25	\$10	=DOLLAR(C9,0)					
10			10.25	\$10.3	=DOLLAR(C10,1)					
11			10.25	\$10.25	=DOLLAR(C11,2)					
12										
13	What Does It Do?									
14			This function converts a number into a piece of text formatted as currency.							
15										
16	Syntax									
17			=DOLLAR(Number,DecimalPlaces)							
18			Number : This is the number which needs to be converted.							
19			DecimalPlaces : This is the amount of decimal places needed in the converted number.							
20										
21	Formatting									
22			No special formatting is needed.							
23			The result will be shown as a text entry.							

1	DSUM									
2	<i>This is the Database range.</i>									
3	Product	Wattage	Life Hours	Brand	Unit Cost	Box Quantity	Boxes In Stock	Value Of Stock		
4	Bulb	200	3000	Horizon	£4.50	4	3	£54.00		
5	Neon	100	2000	Horizon	£2.00	15	2	£60.00		
6	Spot	60						£0.00		
7	Other	10	8000	Sunbeam	£0.80	25	6	£120.00		
8	Bulb	80	1000	Horizon	£0.20	40	3	£24.00		
9	Spot	100	unknown	Horizon	£1.25	10	4	£50.00		
10	Spot	200	3000	Horizon	£2.50	15	0	£0.00		
11	Other	25	unknown	Sunbeam	£0.50	10	3	£15.00		
12	Bulb	200	3000	Sunbeam	£5.00	3	2	£30.00		
13	Neon	100	2000	Sunbeam	£1.80	20	5	£180.00		
14	Bulb	100	unknown	Sunbeam	£0.25	10	5	£12.50		
15	Bulb	10	800	Horizon	£0.20	25	2	£10.00		
16	Bulb	60	1000	Sunbeam	£0.15	25	0	£0.00		
17	Bulb	80	1000	Sunbeam	£0.20	30	2	£12.00		
18	Bulb	100	2000	Horizon	£0.80	10	5	£40.00		
19	Bulb	40	1000	Horizon	£0.10	20	5	£10.00		
20										
21	To calculate the total Value Of Stock of a particular Brand of bulb.									
22										
23				Brand	<i>These two cells are the Criteria range.</i>					
24	Type the brand name :			Horizon						
25										
26	The stock value of Horizon is :			£248.00	=DSUM(B3:I19,I3,E23:E24)					
27										
28	What Does It Do ?									
29	This function examines a list of information and produces the total.									
30										
31	Syntax									
32	=DSUM(DatabaseRange,FieldName,CriteriaRange)									
33	The DatabaseRange is the entire list of information you need to examine, including the									
34	field names at the top of the columns.									
35	The FieldName is the name, or cell, of the values to be totalled, such as "Value Of Stock" or I3.									
36	The CriteriaRange is made up of two types of information.									
37	The first set of information is the name, or names, of the Fields(s) to be used as the basis									
38	for selecting the records, such as the category Brand or Wattage.									
39	The second set of information is the actual record, or records, which are to be selected, such									
40	as Horizon as a brand name, or 100 as the wattage.									
41										
42	Formatting									
43	No special formatting is needed.									
44										
45	Examples									
46										
47	The total Value Of Stock of a particular Product of a particular Brand.									
48										
49				Product	Brand					
50				Bulb	sunbeam					
51										

	A	B	C	D	E	F	G	H	I	J
52			Total stock value is :		£54.50	=DSUM(B3:I19,I3,E49:F50)				
53										
54	This is the same calculation but using the name "Value Of Stock" instead of the cell address.									
55										
56					£54.50	=DSUM(B3:I19,"Value Of Stock",E49:F50)				
57										
58	The total Value Of Stock of a Bulb equal to a particular Wattage.									
59										
60					Product	Wattage				
61					Bulb	100				
62										
63			Total Value Of Stock is :		£52.50	=DSUM(B3:I19,"Value Of Stock",E60:F61)				
64										
65	The total Value Of Stock of a Bulb less than a particular Wattage.									
66										
67					Product	Wattage				
68					Bulb	<100				
69										
70			Total Value Of Stock is :		£56.00	=DSUM(B3:I19,"Value Of Stock",E67:F68)				

	A	B	C	D	E	F	G	H	I	J
1	Eastern data.									
2	Used by the example for the =INDIRECT() function.									
3										
4			Jan	Feb	Mar	Total				
5		Alan	1000	2000	3000	6000				
6		Bob	4000	5000	6000	15000				
7		Carol	7000	8000	9000	24000				
8		Total	12000	15000	18000	45000				

	A	B	C	D	E	F	G
1	EDATE						
2							
3			Start Date	Plus Months	End Date		
4			1-Jan-98	3	1-Apr-98	=EDATE(C4,D4)	
5			2-Jan-98	3	2-Apr-98	=EDATE(C5,D5)	
6			2-Jan-98	-3	2-Oct-97	=EDATE(C6,D6)	
7							
8	What Does It Do?						
9	This function is used to calculate a date which is a specific number of months in the past or						
10	in the future.						
11							
12	Syntax						
13	=EDATE(StartDate,Months)						
14							
15	Formatting						
16	The result will normally be expressed as a number, this can be formatted to represent						
17	a date by using the Format,Cells,Number,Date command.						
18							
19	Example						
20	This example was used by a company hiring contract staff.						
21	The company needed to know the end date of the employment.						
22	The Start date is entered.						
23	The contract Duration is entered as months.						
24	The =EDATE() function has been used to calculate the end of the contract.						
25							
26			Start	Duration	End		
27			Tue 06-Jan-98	3	Mon 06-Apr-98	=EDATE(C27,D27)	
28			Mon 12-Jan-98	3	Sun 12-Apr-98	=EDATE(C28,D28)	
29			Fri 09-Jan-98	4	Sat 09-May-98	=EDATE(C29,D29)	
30			Fri 09-Jan-98	3	Thu 09-Apr-98	=EDATE(C30,D30)	
31			Mon 19-Jan-98	3	Sun 19-Apr-98	=EDATE(C31,D31)	
32			Mon 26-Jan-98	3	Sun 26-Apr-98	=EDATE(C32,D32)	
33			Mon 12-Jan-98	3	Sun 12-Apr-98	=EDATE(C33,D33)	
34							
35							
36	The company decide not to end contracts on Saturday or Sunday.						
37	The =WEEKDAY() function has been used to identify the actual weekday number of the end date.						
38	If the week day number is 6 or 7, (Sat or Sun), then 5 is subtracted from the =EDATE() to						
39	ensure the end of contract falls on a Friday.						
40							
41			Start	Duration	End		
42			Tue 06-Jan-98	3	Mon 06-Apr-98		
43			Mon 12-Jan-98	3	Fri 10-Apr-98		
44			Fri 09-Jan-98	4	Fri 08-May-98		
45			Fri 09-Jan-98	3	Thu 09-Apr-98		
46			Mon 19-Jan-98	3	Fri 17-Apr-98		
47			Mon 26-Jan-98	3	Fri 24-Apr-98		
48			Mon 12-Jan-98	3	Fri 10-Apr-98		
49							
50	=EDATE(C48,D48)-IF(WEEKDAY(EDATE(C48,D48),2)>5,WEEKDAY(EDATE(C48,D48),2)-5,0)						

	A	B	C	D	E	F	G
1	EOMONTH						
2							
3			StartDate	Plus Months	End Of Month		
4			5-Jan-98	2	35885	=EOMONTH(C4,D4)	
5			5-Jan-98	2	31-Mar-98	=EOMONTH(C5,D5)	
6			5-Jan-98	-2	30-Nov-97	=EOMONTH(C6,D6)	
7							
8	What Does It Do?						
9	This function will show the last day of the month which is a specified number of months						
10	before or after a given date.						
11							
12	Syntax						
13	=EOMONTH(StartDate,Months)						
14							
15	Formatting						
16	The result will normally be expressed as a number, this can be formatted to represent						
17	a date by using the Format,Cells,Number,Date command.						

	A	B	C	D	E	F	G	H
1	ERROR.TYPE							
2								
3			Data	The Error	Error Type			
4			10	0	#DIV/0!	532	=ERROR.TYPE(E4)	
5			10	3	Err:508	508	=ERROR.TYPE(E5)	
6			10	3	#VALUE!	519	=ERROR.TYPE(E6)	
7			10:00	13:00	21:00	#N/A	=ERROR.TYPE(E7)	
8								
9								
10	What Does It Do?							
11	This function will show a number which corresponds to an error produced by a formula.							
12								
13	Syntax							
14	=ERROR.TYPE(Error)							
15	Error is the cell reference where the error occurred.							
16								
17	Formatting							
18	The result will be formatted as a normal number.							
19								
20	Example							
21	See Example 4 in the =DGET() function.							

	A	B	C	D	E	F	G	H	I
1	EVEN								
2									
3			Original Value	Evenly Rounded					
4			1	2	=EVEN(C4)				
5			1.2	2	=EVEN(C5)				
6			2.3	4	=EVEN(C6)				
7			25	26	=EVEN(C7)				
8									
9	What Does It Do ?								
10			This function round a number up the nearest even whole number.						
11									
12	Syntax								
13			=EVEN(Number)						
14									
15	Formatting								
16			No special formatting is needed.						
17									
18	Example								
19			The following table is used by a garage which repairs cars.						
20			The garage is repairing a fleet of cars from three manufactures.						
21			Each manufacturer uses a different type of windscreen wiper which are only supplied in pairs.						
22									
23			Table 1 was used to enter the number of wipers required for each type of car						
24			and then show how many pairs need to be ordered.						
25									
26			Table 1						
27			Car	Wipers To Order	Pairs to Order				
28			Vauxhall	5	3	=EVEN(D28)/2			
29			Ford	9	5	=EVEN(D29)/2			
30			Peugeot	7	4	=EVEN(D30)/2			

	A	B	C	D	E	F	G	H	I	J
1	EXACT									
2										
3			Text1	Text2	Result					
4			Hello	Hello	TRUE	=EXACT(C4,D4)				
5			Hello	hello	FALSE	=EXACT(C5,D5)				
6			Hello	Goodbye	FALSE	=EXACT(C6,D6)				
7										
8	What Does It Do?									
9	This function compares two items of text and determine whether they are exactly the same.									
10	The case of the characters is taken into account, only words which are spelt the same and									
11	which have upper and lower case characters in the same position will be considered as equal.									
12										
13	Syntax									
14	=EXACT(Text1,Text2)									
15	Only two items of text can be compared.									
16										
17	Formatting									
18	If the two items of text are exactly the same the result of TRUE will be shown.									
19	If there is any difference in the two items of text the result of FALSE will be shown.									
20										
21	Example									
22	Here is a simple password checking formula.									
23	You need to guess the correct password.									
24	The password is the name of a colour, either red blue or green.									
25	The case of the password is important.									
26	The =EXACT() function is used to check your guess.									
27										
28	Guess the password :			red						
29	Is it correct :			No						
30										
31	(To stop you from cheating, the correct password has been entered as a series of =CHAR()									
32	functions, which use the ANSI number of the characters rather than the character itself!)									
33	Its still very easy though.									

	A	B	C	D	E	F	G	H	
1	FACT								
2									
3			Number	Factorial					
4			3	6	=FACT(C4)				
5			3.5	6	=FACT(C5)				
6			5	120	=FACT(C6)				
7			10	3,628,800	=FACT(C7)				
8			20	2,432,902,008,176,640,000	=FACT(C8)				
9									
10	What Does It Do ?								
11	This function calculates the factorial of a number.								
12	The factorial is calculated as 1*2*3*4..etc.								
13	The factorial of 5 is calculated as 1*2*3*4*5, which results in 120.								
14	Decimal fractions of the number are ignored.								
15									
16	Syntax								
17	=FACT(Number)								
18									
19	Formatting.								
20	No special formatting is needed.								
21									
22									
23									
24									
25									
26									
27									
28									
29						3			

	A	B	C	D	E	F	G
1	FIND						
2							
3			Text	Letter To Find	Position Of Letter		
4			Hello	e	2	=FIND(D4,C4)	
5			Hello	H	1	=FIND(D5,C5)	
6			Hello	o	5	=FIND(D6,C6)	
7			Alan Williams	a	3	=FIND(D7,C7)	
8			Alan Williams	a	11	=FIND(D8,C8,6)	
9			Alan Williams	T	#VALUE!	=FIND(D9,C9)	
10							
11	What Does It Do?						
12	This function looks for a specified letter inside another piece of text.						
13	When the letter is found the position is shown as a number.						
14	If the text contains more than one reference to the letter, the first occurrence is used.						
15	An additional option can be used to start the search at a specific point in the text, thus						
16	enabling the search to find duplicate occurrences of the letter.						
17	If the letter is not found in the text, the result #VALUE is shown.						
18							
19	Syntax						
20	=FIND(LetterToLookFor,TextToLookInside,StartPosition)						
21	LetterToLookFor : This needs to be a single character.						
22	TextToLookInside : This is the piece of text to be searched through.						
23	StartPosition : This is optional, it specifies at which point in the text the search should begin.						
24							
25	Formatting						
26	No special formatting is needed, the result will be shown as a number.						

	A	B	C	D	E	F	G	H	I	J
1	FIXED									
2										
3			Original Number	Converted To Text						
4			10	10.00	=FIXED(C4)					
5			10	10	=FIXED(C5,0)					
6			10	10.0	=FIXED(C6,1)					
7			10	10.00	=FIXED(C7,2)					
8			10.25	10.25	=FIXED(C8)					
9			10.25	10	=FIXED(C9,0)					
10			10.25	10.3	=FIXED(C10,1)					
11			10.25	10.25	=FIXED(C11,2)					
12			1000	1,000.00	=FIXED(C12)					
13			1000.23	1,000	=FIXED(C13,0)					
14			1000.23	1000	=FIXED(C14,0,TRUE)					
15										
16	What Does It Do ?									
17	This function converts a numeric value to text.									
18	During the conversion the value can be rounded to a specific number of decimal places,									
19	and commas can be inserted at the 1,000's.									
20										
21	Syntax									
22	=FIXED(NumberToConvert,DecimalPlaces,Commas)									
23	If DecimalPlaces places is not specified the function will assume 2.									
24	The Commas option can be TRUE for commas or FALSE for no commas.									
25	If the Commas is not specified the function will assume TRUE.									
26										
27	Formatting									
28	No special formatting is needed.									
29	Note that any further formatting with the Format, Cells, Number command will not have any effect.									

	A	B	C	D	E	F	G	H	I
1	FLOOR								
2									
3			Number	Rounded Down					
4			1.5	1	=FLOOR(C4,1)				
5			2.3	2	=FLOOR(C5,1)				
6			2.9	2	=FLOOR(C6,1)				
7			123	100	=FLOOR(C7,50)				
8			145	100	=FLOOR(C8,50)				
9			175	150	=FLOOR(C9,50)				
10									
11	What Does It Do ?								
12	This function rounds a value down to the nearest multiple specified by the user.								
13									
14	Syntax								
15	=FLOOR(NumberToRound,SignificantValue)								
16									
17	Formatting								
18	No special formatting is needed.								
19									
20	Example								
21	The following table was used to calculate commission for members of a sales team.								
22	Commission is only paid for every £1000 of sales.								
23	The =FLOOR() function has been used to round down the Actual Sales to the								
24	nearest 1000, which is then used as the basis for Commission.								
25									
26			Name	Actual Sales	Relevant Sales	Commission			
27			Alan	£23,500	£23,000	£230			
28			Bob	£56,890	£56,000	£560			
29			Carol	£18,125	£18,000	£180			
30	=FLOOR(D29,1000)								

	A	B	C	D	E	F	G	H	I
1	FORECAST								
2	<hr/>								
3					Month	Sales			
4					1	£1,000			
5					2	£2,000			
6					3	£2,500			
7					4	£3,500			
8					5	£3,800			
9					6	£4,000			
10	<hr/>								
11		Type the month number to predict :			12				
12		The Forecast sales figure is :			£7,997	=FORECAST(E11,F4:F9,E4:E9)			
13	<hr/>								
14	What Does It Do ?								
15	This function uses two sets of values to predict a single value.								
16	The predicted value is based on the relationship between the two original sets of values.								
17	If the values are sales figures for months 1 to 6, (Jan to Jun), you can use the function								
18	to predict what the sales figure will be in any other month.								
19	The way in which the prediction is calculated is based upon the assumption of a Linear Trend.								
20	<hr/>								
21	Syntax								
22	=FORECAST(ItemToForeCast,RangeY,RangeX)								
23	ItemToForecast is the point in the future, (or past), for which you need the forecast.								
24	RangeY is the list of values which contain the historical data to be used as the basis								
25	of the forecast, such as Sales figures.								
26	RangeX is the intervals used when recording the historical data, such as Month number.								
27	<hr/>								
28	Formatting								
29	No special formatting is needed.								
30	<hr/>								
31	Example								
32	The following table was used by a company considering expansion of their sales team.								
33	The Size and Performance of the previous teams over a period of three years were entered.								
34	The size of the New Sales team is entered.								
35	The =FORECAST() function is used to calculate the predicted performance for the new sales								
36	team based upon a linear trend.								
37	<hr/>								
38					Year	Size Of Sales Team	Known Performance		
39					1996	10	£5,000		
40					1997	20	£8,000		
41					1998	30	£8,500		
42	<hr/>								
43		Size Of The New Sales Team :			40				
44		Estimated Forecast Of Performance :			£10,667	=FORECAST(E43,E39:E41,D39:D41)			

	A	B	C	D	E	F	G	H	I
1	FREQUENCY								
2									
3				Jan	Feb	Mar			
4			North	£5,000	£6,000	£4,500			
5			South	£5,800	£7,000	£3,000			
6			East	£3,500	£2,000	£10,000			
7			West	£12,000	£4,000	£6,000			
8									
9			Sales £4,000 and below.	£4,000	4	{=FREQUENCY(D4:F7,E9:E11)}			
10			Sales above £4,000 up to £6,000	£6,000	5	{=FREQUENCY(D4:F7,E9:E11)}			
11			Sales above £6,000	£999,999	3	{=FREQUENCY(D4:F7,E9:E11)}			
12									
13	What Does It Do ?								
14	This function compares a range of data against a list of intervals.								
15	The result shows how many items in the range of data fall between the intervals.								
16	The function is entered in the cells as an array, that is why it is enclosed in { } braces.								
17									
18	Syntax								
19	=FREQUENCY(RangeOfData,ListOfIntervals)								
20									
21	Formatting								
22	No special formatting is needed.								
23									
24	Example 1								
25	The following tables were used to record the weight of a group of children.								
26	The =FREQUENCY() function was then used to calculate the number of children whose								
27	weights fell between specified intervals.								
28									
29			Weight Kg				Number Of Children:		
30	Child 1		20.47				Between 0 - 15 Kg	2	
31	Child 2		22.83				Above 15 but less than or equal to 20 Kg	4	
32	Child 3		15.74				Above 20 Kg	3	
33	Child 4		10.80					{=FREQUENCY(C30:C38,C41:C43)}	
34	Child 5		8.28					{=FREQUENCY(C30:C38,C41:C43)}	
35	Child 6		20.66					{=FREQUENCY(C30:C38,C41:C43)}	
36	Child 7		17.36						
37	Child 8		16.67						
38	Child 9		18.01						
39									
40			Kg Weight Intervals						
41			15						
42			20						
43			100						
44									
45									
46	Example 2								
47	This example uses characters instead of values.								
48	A restaurant has asked 40 customers for their rating of the food in the restaurant.								
49	The ratings were entered into a table as a single letter, E, V, A, P or D.								
50	The manager now wants to calculate how many responses fell into each category.								
51	Unfortunately, the =FREQUENCY() function ignores text entries, so how can the frequency								
52	of text be calculated?								
53									
54	The answer is to use the =CODE() and =UPPER() functions.								

	A	B	C	D	E	F	G	H	I
55		The =UPPER() forces all the text entries to be considered as capital letters.							
56		The =CODE() function calculates the unique ANSI code for each character.							
57		As this code is a numeric value, the =FREQUENCY() function can then be used!							
58									
59			Rating	Frequency					
60		Excellent	E	6	{=FREQUENCY(CODE(UPPER(B67:I71)),CODE(UPPER(C60:C64)))}				
61		Very Good	V	8	{=FREQUENCY(CODE(UPPER(B67:I71)),CODE(UPPER(C60:C64)))}				
62		Average	A	9	{=FREQUENCY(CODE(UPPER(B67:I71)),CODE(UPPER(C60:C64)))}				
63		Poor	P	8	{=FREQUENCY(CODE(UPPER(B67:I71)),CODE(UPPER(C60:C64)))}				
64		Disgusting	D	9	{=FREQUENCY(CODE(UPPER(B67:I71)),CODE(UPPER(C60:C64)))}				
65									
66		Customer Ratings							
67		V	D	V	A	p	A	D	D
68		V	P	a	D	A	P	V	d
69		A	V	E	P	p	E	D	A
70		A	E	d	V	D	P	a	E
71		V	e	P	P	A	V	E	D

	A	B	C	D	E	F	G	H	I
1	FREQUENCY 2								
2									
3	This example shows how the =FREQUENCY() function has been used to calculate								
4	how often certain numbers appear in the Lottery results.								
5									
6	Table 1 is a record of all the results from the past seven weeks.								
7									
8	Table 1								
9			Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
10		1st Number	3	36	5	3	2	41	45
11		2nd Number	6	3	19	37	23	15	4
12		3rd Number	15	44	35	20	47	29	44
13		4th Number	32	15	32	46	6	45	23
14		5th Number	37	31	13	22	49	13	43
15		6th Number	5	22	30	8	49	11	46
16		Bonus Ball	17	13	15	25	18	17	1
17									
18									
19	Table 2 is the list of possible number from 1 to 49, and how many appearances								
20	each number has made during the past seven weeks.								
21									
22	Table 2								
23		Lottery Number	How Many Appearances						
24		1	1	{=FREQUENCY(C10:I16,B24:B72)}					
25		2	1	{=FREQUENCY(C10:I16,B24:B72)}					
26		3	3	{=FREQUENCY(C10:I16,B24:B72)}					
27		4	1	{=FREQUENCY(C10:I16,B24:B72)}					
28		5	2						
29		6	2						
30		7	0						
31		8	1						
32		9	0						
33		10	0						
34		11	1						
35		12	0						
36		13	3						
37		14	0						
38		15	4						
39		16	0						
40		17	2						
41		18	1						
42		19	1						
43		20	1						
44		21	0						
45		22	2						
46		23	2						
47		24	0						
48		25	1						
49		26	0						
50		27	0						
51		28	0						
52		29	1						

Special tip!
 To count how many unique numbers in a range use the following formula. It has to be entered, as an array, so press Ctrl+Shift+Enter rather than, just Enter alone.

Unique values. 31

=SUM(1/COUNTIF(C10:I16,C10:I16))

	A	B	C	D	E	F	G	H	I
53		30	1						
54		31	1						
55		32	2						
56		33	0						
57		34	0						
58		35	1						
59		36	1						
60		37	2						
61		38	0						
62		39	0						
63		40	0						
64		41	1						
65		42	0						
66		43	1						
67		44	2						
68		45	2						
69		46	2						
70		47	1						
71		48	0						
72		49	2						

	A	B	C	D	E	F	G	H	I	J	
1	GCD										
2											
3			Numbers		Greatest Divisor						
4			6	15	3	=GCD(C4,D4)					
5			28	49	7	=GCD(C5,D5)					
6			5	99	1	=GCD(C6,D6)					
7											
8			Numbers			Greatest Divisor					
9			18	72	96	6	=GCD(C9,D9,E9)				
10			300	500	200	100	=GCD(C10,D10,E10)				
11			2.5	4	6	0.5	=GCD(C11,D11,E11)				
12											
13	What Does It Do ?										
14	This function calculates the largest number which can be used to divided all the										
15	values specified.										
16	The result is always a whole number.										
17	Where there is no common divisor the value of 1 is used.										
18	Decimal fractions are ignored.										
19											
20	Syntax										
21	=GCD(Number1,Number2,Number3... through to Number29)										
22											
23	Formatting										
24	No special formatting is needed.										

	A	B	C	D	E	F	G	H	I	J
1	GESTEP									
2										
3			Number1	Number2	GESTEP					
4			10	20	0	=GESTEP(C4,D4)				
5			50	20	1	=GESTEP(C5,D5)				
6			99	100	0	=GESTEP(C6,D6)				
7			100	100	1	=GESTEP(C7,D7)				
8			101	100	1	=GESTEP(C8,D8)				
9			2		1	=GESTEP(C9,D9)				
10				2	0	=GESTEP(C10,D10)				
11										
12	What Does It Do ?									
13	This function test a number to see if it is greater than or equal to another number.									
14	If the number is greater than or equal, the result of 1 will be shown, otherwise 0 is shown.									
15										
16	Syntax									
17	=GESTEP(NumberToTest,NumberToTestAgainst)									
18										
19	Formatting									
20	No special formatting is needed.									
21										
22	Example									
23	The following table was used to calculate how many sales staff achieved their targets.									
24	The =GESTEP() function compares the Sales with Target, and the results are totalled.									
25										
26			Name	Sales	Target	GESTEP				
27			Alan	£3,000	£4,000	0	=GESTEP(D27,E27)			
28			Bob	£5,000	£4,000	1	=GESTEP(D28,E28)			
29			Carol	£1,000	£2,000	0	=GESTEP(D29,E29)			
30			David	£2,000	£2,000	1	=GESTEP(D30,E30)			
31			Eric	£8,000	£7,000	1	=GESTEP(D31,E31)			
32										
33			Targets Achieved		3	=SUM(F27:F31)				

	A	B	C	D	E	F	G
1	HEX2DEC						
2	<hr/>						
3			Hexadecimal	Decimal Number			
4			0	0	=HEX2DEC(C4)		
5			1	1	=HEX2DEC(C5)		
6			2	2	=HEX2DEC(C6)		
7			3	3	=HEX2DEC(C7)		
8			1A	26	=HEX2DEC(C8)		
9			1B	27	=HEX2DEC(C9)		
10			7FFFFFFF	549,755,813,887	=HEX2DEC(C10)		
11			800000000	-549,755,813,888	=HEX2DEC(C11)		
12			FFFFFFFF	-1	=HEX2DEC(C12)		
13			FFFFFFFFE	-2	=HEX2DEC(C13)		
14			FFFFFFFFD	-3	=HEX2DEC(C14)		
15	<hr/>						
16	What Does It Do ?						
17	This function converts a hexadecimal number to its decimal equivalent.						
18	<hr/>						
19	Syntax						
20	=HEX2DEC(HexaDecimalNumber)						
21	<hr/>						
22	Formatting						
23	No special formatting is needed.						
24	<hr/>						
25	Example						
26	The following table was used to add two hexadecimal values together.						
27	<hr/>						
28			Hexadecimal				
29	Value 1		F				
30	Value 2		1A				
31	Result		29		=DEC2HEX(HEX2DEC(C29)+HEX2DEC(C30))		

	A	B	C	D	E	F	G	H	I	J	
1	HLOOKUP										
2											
3				Jan	Feb	Mar	row 1	The row numbers are not needed.			
4				10	80	97	row 2	they are part of the illustration.			
5				20	90	69	row 3				
6				30	100	45	row 4				
7				40	110	51	row 5				
8				50	120	77	row 6				
9											
10	Type a month to look for :					Feb					
11	Which row needs to be picked out :					4					
12											
13	The result is :					100	=HLOOKUP(F10,D3:F10,F11,FALSE)				
14											
15	What Does It Do ?										
16	This function scans across the column headings at the top of a table to find a specified item.										
17	When the item is found, it then scans down the column to pick a cell entry.										
18											
19	Syntax										
20	=HLOOKUP(ItemToFind,RangeToLookIn,RowToPickFrom,SortedOrUnsorted)										
21	The ItemToFind is a single item specified by the user.										
22	The RangeToLookIn is the range of data with the column headings at the top.										
23	The RowToPickFrom is how far down the column the function should look to pick from.										
24	The Sorted/Unsorted is whether the column headings are sorted. TRUE for yes, FALSE for no.										
25											
26	Formatting										
27	No special formatting is needed.										
28											
29	Example 1										
30	This table is used to find a value based on a specified month and name.										
31	The =HLOOKUP() is used to scan across to find the month.										
32	The problem arises when we need to scan down to find the row adjacent to the name.										
33	To solve the problem the =MATCH() function is used.										
34											
35	The =MATCH() looks through the list of names to find the name we require. It then calculates										
36	the position of the name in the list. Unfortunately, because the list of names is not as deep										
37	as the lookup range, the =MATCH() number is 1 less than we require, so an extra 1 is										
38	added to compensate.										
39											
40	The =HLOOKUP() now uses this =MATCH() number to look down the month column and										
41	picks out the correct cell entry.										
42											
43	The =HLOOKUP() uses FALSE at the end of the function to indicate to Excel that the										
44	column headings are not sorted, even though to us the order of Jan, Feb, Mar is correct.										
45	If they were sorted alphabetically they would have read as Feb, Jan, Mar.										
46											
47				Jan	Feb	Mar					
48		Bob		10	80	97					
49		Eric		20	90	69					
50		Alan		30	100	45					
51		Carol		40	110	51					
52		David		50	120	77					
53											
54	Type a month to look for :					feb					

	A	B	C	D	E	F	G	H	I	J
55		Type a name to look for :				alan				
56										
57				The result is :		100				
58				=HLOOKUP(F54,D47:F54,MATCH(F55,C48:C52,0)+1,FALSE)						
59										
60		Example 2								
61		This example shows how the =HLOOKUP() is used to pick the cost of a spare part for								
62		different makes of cars.								
63		The =HLOOKUP() scans the column headings for the make of car specified in column B.								
64		When the make is found, the =HLOOKUP() then looks down the column to the row specified								
65		by the =MATCH() function, which scans the list of spares for the item specified in column C.								
66										
67		The function uses the absolute ranges indicated by the dollar symbol \$. This ensures that								
68		when the formula is copied to more cells, the ranges for =HLOOKUP() and =MATCH() do								
69		not change.								
70										
71		Maker	Spare	Cost			Vauxhall	Ford	VW	
72		Vauxhall	Ignition	£50			500	450	600	
73		VW	GearBox	£600		GearBox	1000	1200	800	
74		Ford	Engine	£1,200		Engine	250	350	275	
75		VW	Steering	£275		Steering	50	70	45	
76		Ford	Ignition	£70		Ignition	300	290	310	
77		Ford	CYHead	£290		CYHead				
78		Vauxhall	GearBox	£500						
79		Ford	Engine	£1,200						
80				=HLOOKUP(B79,G72:I77,MATCH(C79,F73:F77,0)+1,FALSE)						
81										
82										
83		Example 3								
84		In the following example a builders merchant is offering discount on large orders.								
85		The Unit Cost Table holds the cost of 1 unit of Brick, Wood and Glass.								
86		The Discount Table holds the various discounts for different quantities of each product.								
87		The Orders Table is used to enter the orders and calculate the Total.								
88										
89		All the calculations take place in the Orders Table.								
90		The name of the Item is typed in column C.								
91										
92		The Unit Cost of the item is then looked up in the Unit Cost Table.								
93		The FALSE option has been used at the end of the function to indicate that the product								
94		names across the top of the Unit Cost Table are not sorted.								
95		Using the FALSE option forces the function to search for an exact match. If a match is								
96		not found, the function will produce an error.								
97		=HLOOKUP(C127,E111:G112,2,FALSE)								
98										
99		The discount is then looked up in the Discount Table								
100		If the Quantity Ordered matches a value at the top of the Discount Table the =HLOOKUP will								
101		look down the column to find the correct discount.								
102		The TRUE option has been used at the end of the function to indicate that the values								
103		across the top of the Discount Table are sorted.								
104		Using TRUE will allow the function to make an approximate match. If the Quantity Ordered does								
105		not match a value at the top of the Discount Table, the next lowest value is used.								
106		Trying to match an order of 125 will drop down to 100, and the discount from								
107		the 100 column is used.								
108		=HLOOKUP(D127,E115:G118,MATCH(C127,D116:D118,0)+1,TRUE)								

	A	B	C	D	E	F	G	H	I	J
109										
110					Unit Cost Table					
111					Brick	Wood	Glass			
112					£2	£1	£3			
113										
114					Discount Table					
115					1	100	300			
116				Brick	0%	6%	8%			
117				Wood	0%	3%	5%			
118				Glass	0%	12%	15%			
119										
120					Orders Table					
121				Item	Units	Unit Cost	Discount	Total		
122				Brick	100	£2	6%	£188		
123				Wood	200	£1	3%	£194		
124				Glass	150	£3	12%	£396		
125				Brick	225	£2	6%	£423		
126				Wood	50	£1	0%	£50		
127				Glass	500	£3	15%	£1,275		
128										
129			Unit Cost	=HLOOKUP(C127,E111:G112,2,FALSE)						
130										
131			Discount	=HLOOKUP(D127,E115:G118,MATCH(C127,D116:D118,0)+1,TRUE)						

	A	B	C	D	E	F	G	H	I
1	HOUR								
2	<hr/>								
3			Number	Hour					
4			21:15	21	=HOUR(C4)				
5			0.25	6	=HOUR(C5)				
6	<hr/>								
7	What Does It Do?								
8	The function will show the hour of the day based upon a time or a number.								
9	<hr/>								
10	Syntax								
11	=HOUR(Number)								
12	<hr/>								
13	Formatting								
14	The result will be shown as a normal number between 0 and 23.								

	A	B	C	D	E	F	G	H	I	J
1	IF									
2										
3		Name	Sales	Target	Result					
4		Alan	1000	5000	Not Achieved	=IF(C4>=D4,"Achieved","Not Achieved")				
5		Bob	6000	5000	Achieved	=IF(C5>=D5,"Achieved","Not Achieved")				
6		Carol	2000	4000	Not Achieved	=IF(C6>=D6,"Achieved","Not Achieved")				
7										
8		What Does It Do?								
9		This function tests a condition.								
10		If the condition is met it is considered to be TRUE.								
11		If the condition is not met it is considered as FALSE.								
12		Depending upon the result, one of two actions will be carried out.								
13										
14		Syntax								
15		=IF(Condition,ActionIfTrue,ActionIfFalse)								
16		The Condition is usually a test of two cells, such as A1=A2.								
17		The ActionIfTrue and ActionIfFalse can be numbers, text or calculations.								
18										
19		Formatting								
20		No special formatting is required.								
21										
22		Example 1								
23		The following table shows the Sales figures and Targets for sales reps.								
24		Each has their own target which they must reach.								
25		The =IF() function is used to compare the Sales with the Target.								
26		If the Sales are greater than or equal to the Target the result of Achieved is shown.								
27		If the Sales do not reach the target the result of Not Achieved is shown.								
28		Note that the text used in the =IF() function needs to be placed in double quotes "Achieved".								
29										
30		Name	Sales	Target	Result					
31		Alan	1000	5000	Not Achieved	=IF(C31>=D31,"Achieved","Not Achieved")				
32		Bob	6000	5000	Achieved	=IF(C32>=D32,"Achieved","Not Achieved")				
33		Carol	2000	4000	Not Achieved	=IF(C33>=D33,"Achieved","Not Achieved")				
34										
35										
36		Example 2								
37		The following table is similar to that in Example 1.								
38		This time the Commission to be paid to the sales rep is calculated.								
39		If the Sales are greater than or equal to the Target, the Commission is 10% of Sales.								
40		If the Sales do not reach Target, the Commission is only 5% of Sales.								
41										
42		Name	Sales	Target	Commission					
43		Alan	1000	5000	50	=IF(C43>=D43,C43*10%,C43*5%)				
44		Bob	6000	5000	600	=IF(C44>=D44,C44*10%,C44*5%)				
45		Carol	2000	4000	100	=IF(C45>=D45,C45*10%,C45*5%)				
46										
47										
48		Example 3								
49		This example uses the =AND() within the =IF() function.								
50		A builders merchant gives 10% discount on certain product lines.								
51		The discount is only given on products which are on Special Offer, when the Order Value								
52		is £1000 or above.								
53		The =AND() function is used with the =IF() to check that the product is on offer and that								
54		the value of the order is above £1000.								
55										
56			Special	Order						
57		Product	Offer	Value	Discount	Total				
58		Wood	Yes	£2,000	£200	£1,800				

	A	B	C	D	E	F	G	H	I	J
59		Glass	No	£2,000	£-	£2,000				
60		Cement	Yes	£500	£-	£500				
61		Turf	Yes	£3,000	£300	£2,700				
62					=IF(AND(C61="Yes",D61>=1000),D61*10%,0)					

	A	B	C	D	E	F	G	H	I	
1	INDEX									
2										
3	Holiday booking price list.									
4										
5					People					
6	Weeks		1	2	3	4				
7	1		£500	£300	£250	£200				
8	2		£600	£400	£300	£250				
9	3		£700	£500	£350	£300				
10										
11	How many weeks required :						2			
12	How many people in the party :						4			
13										
14	Cost per person is :					250	=INDEX(D7:G9,G11,G12)			
15										
16	What Does It Do ?									
17	This function picks a value from a range of data by looking down a specified number									
18	of rows and then across a specified number of columns.									
19	It can be used with a single block of data, or non-continuous blocks.									
20										
21	Syntax									
22	There are various forms of syntax for this function.									
23										
24	Syntax 1									
25	=INDEX(RangeToLookIn,Coordinate)									
26	This is used when the RangeToLookIn is either a single column or row.									
27	The Co-ordinate indicates how far down or across to look when picking the data from the range.									
28	Both of the examples below use the same syntax, but the Co-ordinate refers to a row when									
29	the range is vertical and a column when the range is horizontal.									
30										
31				Colours						
32				Red						
33				Green						
34				Blue	Size	Large	Medium	Small		
35										
36	Type either 1, 2 or 3 :		2	Type either 1, 2 or 3 :		2				
37	The colour is :		Green	The size is :		Medium				
38	=INDEX(D32:D34,D36)			=INDEX(G34:I34,H36)						
39										
40	Syntax 2									
41	=INDEX(RangeToLookIn,RowCoordinate,ColumnCoordinate)									
42	This syntax is used when the range is made up of rows and columns.									
43										
44	Country		Currency	Population	Capitol					
45	England		Sterling	50 M	London					
46	France		Franc	40 M	Paris					
47	Germany		DM	60 M	Bonn					
48	Spain		Peseta	30 M	Barcelona					
49										
50	Type 1,2,3 or 4 for the country :					2				
51	Type 1,2 or 3 for statistics :					3				
52										
53	The result is :					Paris	=INDEX(D45:F48,F50,F51)			
54										

	A	B	C	D	E	F	G	H	I
55									
56		Syntax 3							
57		=INDEX(NamedRangeToLookIn,RowCoordinate,ColumnColumnCoordinate,AreaToPickFrom)							
58		Using this syntax the range to look in can be made up of multiple areas.							
59		The easiest way to refer to these areas is to select them and give them a single name.							
60									
61		The AreaToPickFrom indicates which of the multiple areas should be used.							
62									
63		In the following example the figures for North and South have been named as one							
64		range called NorthAndSouth.							
65									
66		NORTH	Qtr1	Qtr2	Qtr3	Qtr4			
67		Bricks	£1,000	£2,000	£3,000	£4,000			
68		Wood	£5,000	£6,000	£7,000	£8,000			
69		Glass	£9,000	£10,000	£11,000	£12,000			
70									
71		SOUTH	Qtr1	Qtr2	Qtr3	Qtr4			
72		Bricks	£1,500	£2,500	£3,500	£4,500			
73		Wood	£5,500	£6,500	£7,500	£8,500			
74		Glass	£9,500	£10,500	£11,500	£12,500			
75									
76		Type 1, 2 or 3 for the product :			1				
77		Type 1, 2, 3 or 4 for the Qtr :			3				
78		Type 1 for North or 2 for South :			2				
79									
80				The result is :	Err:504	=INDEX(NorthAndSouth,F76,F77,F78)			
81									
82									
83									
84		Example							
85		This is an extended version of the previous example.							
86		It allows the names of products and the quarters to be entered.							
87		The =MATCH() function is used to find the row and column positions of the names entered.							
88		These positions are then used by the =INDEX() function to look for the data.							
89									
90		EAST	Qtr1	Qtr2	Qtr3	Qtr4			
91		Bricks	£1,000	£2,000	£3,000	£4,000			
92		Wood	£5,000	£6,000	£7,000	£8,000			
93		Glass	£9,000	£10,000	£11,000	£12,000			
94									
95		WEST	Qtr1	Qtr2	Qtr3	Qtr4			
96		Bricks	£1,500	£2,500	£3,500	£4,500			
97		Wood	£5,500	£6,500	£7,500	£8,500			
98		Glass	£9,500	£10,500	£11,500	£12,500			
99									
100		Type 1, 2 or 3 for the product :			wood				
101		Type 1, 2, 3 or 4 for the Qtr :			qtr2				
102		Type 1 for North or 2 for South :			west				
103									
104				The result is :	Err:504				
105									
106		=INDEX(EastAndWest,MATCH(F100,C91:C93,0),MATCH(F101,D90:G90,0),IF(F102=C90,1,IF(F102=C95,2)))							

	A	B	C	D	E	F	G	H	I	J	
1	INDIRECT										
2											
3						Jan	Feb	Mar			
4				North	10	20	30				
5				South	40	50	60				
6				East	70	80	90				
7				West	100	110	120				
8											
9	Type address of any of the cells in the above table, such as G6 :							G6			
10											
11	The value in the cell you typed is :							80	=INDIRECT(H9)		
12											
13	What Does It Do ?										
14	This function converts a plain piece of text which looks like a cell address into a usable										
15	cell reference.										
16	The address can be either on the same worksheet or on a different worksheet.										
17											
18	Syntax										
19	=INDIRECT(Text)										
20											
21	Formatting										
22	No special formatting is needed.										
23											
24	Example 1										
25	This example shows how data can be picked form other worksheets by using										
26	the worksheet name and a cell address.										
27	The example uses three other worksheets named NORTH, SOUTH and EAST.										
28	The data on these three sheets is laid out in the same cells on each sheet.										
29											
30	When a reference to a sheet is made the exclamation symbol ! needs to be placed										
31	between the sheet name and cell address acting as punctuation.										
32											
33	Type the name of the sheet , such as North :						North				
34	Type the cell to pick data from, such as C8 :						C8				
35	The contents of the cell C8 on North is :						120	=INDIRECT(G33&"!"&G34)			
36											
37	The =INDIRECT() created a reference to =NORTH!C8										
38											
39											
40	Example 2										
41	This example uses the same data as above, but this time the =SUM() function is										
42	used to calculate a total from a range of cells.										
43											
44	Type the name of the sheet , such as South :						South				
45	Type the start cell of the range, such as C5 :						C5				
46	Type the end cell of the range, such as C7 :						C7				
47	The sum of the range C5:C7 on South is :						1200				
48	=SUM(INDIRECT(G44&"!"&G45&"":&G46))										
49											
50	The =INDIRECT() created a reference to =SUM(SOUTH!C5:C7)										
51											

	A	B	C	D	E
1	INFO				
2					
3			System Information		
4		Current directory		=INFO("directory")	
5		Available bytes of memory		Err:502 =INFO("memavail")	
6		Memory in use		Err:502 =INFO("memused")	
7		Total bytes of memory		Err:502 =INFO("totmem")	
8		Number of active worksheets	1	=INFO("numfile")	
9		Cell currently in the top left of the window		Err:502 =INFO("origin")	
10		Operating system	Windows (32-bit) NT 5.01	=INFO("osversion")	
11		Recalculation mode	Automatic	=INFO("recalc")	
12		Excel version	411m6(Build:9775)	=INFO("release")	
13		Name of system. (PC or Mac)	WNT	=INFO("system")	
14					
15		What Does It Do?			
16		This function provides information about the operating environment of the computer.			
17					
18		Syntax			
19		=INFO(text)			
20		text : This is the name of the item you require information about.			
21					
22		Formatting			
23		The results will be shown as text or a number depending upon what was requested.			

	A	B	C	D	E	F	G	H	I	J
1	INT									
2										
3			Number	Integer						
4			1.5	1	=INT(C4)					
5			2.3	2	=INT(C5)					
6			10.75	10	=INT(C6)					
7			-1.47589	-2	=INT(C7)					
8										
9	What Does It Do ?									
10	This function rounds a number down to the nearest whole number.									
11										
12	Syntax									
13	=INT(Number)									
14										
15	Formatting									
16	No special formatting is needed.									
17										
18	Example									
19	The following table was used by a school to calculate the age a child when the									
20	school year started.									
21	A child can only be admitted to school if they are over 8 years old.									
22	The Birth Date and the Term Start date are entered and the age calculated.									
23	Table 1 shows the age of the child with decimal places									
24										
25	Table 1									
26			Birth Date	Term Start	Age					
27			1-Jan-80	1-Sep-88	8.668035592	=(D27-C27)/365.25				
28			5-Feb-81	1-Sep-88	7.570157426					
29			20-Oct-79	1-Sep-88	8.8678987					
30			1-Mar-81	1-Sep-88	7.504449008					
31										
32										
33	Table 2 shows the age of the child with the Age formatted with no decimal places.									
34	This has the effect of increasing the child age.									
35										
36	Table 2									
37			Birth Date	Term Start	Age					
38			1-Jan-80	1-Sep-88	9	=(D38-C38)/365.25				
39			5-Feb-81	1-Sep-88	8					
40			20-Oct-79	1-Sep-88	9					
41			1-Mar-81	1-Sep-88	8					
42										
43										
44	Table 3 shows the age of the child with the Age calculated using the =INT() function to									
45	remove the decimal part of the number to give the correct age.									
46										
47	Table 3									
48			Birth Date	Term Start	Age					
49			1-Jan-80	1-Sep-88	8	=INT((D49-C49)/365.25)				
50			5-Feb-81	1-Sep-88	7					
51			20-Oct-79	1-Sep-88	8					
52			1-Mar-81	1-Sep-88	7					
53										
54										
55	Note									
56	The age is calculated by subtracting the Birth Date from the Term Start to find the									
57	age of the child in days.									
58	The number of days is then divided by 365.25									

	A	B	C	D	E	F	G	H	I	J
59		The reason for using 365.25 is to take account of the leap years.								

	A	B	C	D	E	F	G	H	I
1	ISBLANK								
2									
3			Data	Is The Cell Blank					
4			1	FALSE	=ISBLANK(C4)				
5			Hello	FALSE	=ISBLANK(C5)				
6				TRUE	=ISBLANK(C6)				
7			25-Dec-98	FALSE	=ISBLANK(C7)				
8									
9	What Does It Do?								
10	This function will determine if there is an entry in a particular cell.								
11	It can be used when a spreadsheet has blank cells which may cause errors, but which								
12	will be filled later as the data is received by the user.								
13	Usually the function is used in conjunction with the =IF() function which can test the result								
14	of the =ISBLANK()								
15									
16	Syntax								
17	=ISBLANK(CellToTest)								
18									
19	Formatting								
20	Used by itself the result will be shown as TRUE or FALSE.								
21									
22	Example								
23	The following example shows a list of cheques received by a company.								
24	When the cheque is cleared the date is entered.								
25	Until the Cleared date is entered the Cleared column is blank.								
26	While the Cleared column is blank the cheque will still be Outstanding.								
27	When the Cleared date is entered the cheque will be shown as Banked.								
28	The =ISBLANK() function is used to determine whether the Cleared column is empty or not.								
29									
30	Cheques Received		Date		Date				
31	Num	From	Received	Amount	Cleared	Banked	Outstanding		
32	chq1	ABC Ltd	1-Jan-98	£100	2-Jan-98	100	0		
33	chq2	CJ Design	1-Jan-98	£200	7-Jan-98	200	0		
34	chq3	J Smith	2-Jan-98	£50		0	50		
35	chq4	Travel Co.	3-Jan-98	£1,000		0	1000		
36	chq5	J Smith	4-Jan-98	£250	6-Jan-98	250	0		
37					=IF(ISBLANK(F36),0,E36)				
38					=IF(ISBLANK(F36),E36,0)				
39									
40					Totals	550	1050		

	A	B	C	D	E	F	G	H	I
1	ISERR								
2									
3				Cell to test	Result				
4				3	FALSE	=ISERR(D4)			
5				#DIV/0!	TRUE	=ISERR(D5)			
6				Err:508	TRUE	=ISERR(D6)			
7				#VALUE!	TRUE	=ISERR(D7)			
8				#VALUE!	TRUE	=ISERR(D8)			
9				#VALUE!	TRUE	=ISERR(D9)			
10				#N/A	FALSE	=ISERR(D10)			
11									
12	What Does It Do ?								
13	This function tests a cell and shows TRUE if there is an error value in the cell.								
14	It will show FALSE if the contents of the cell calculate without an error, or if the error								
15	is the #NA message.								
16									
17	Syntax								
18	=ISERR(CellToTest)								
19	The CellToTest can be a cell reference or a calculation.								
20									
21	Formatting								
22	No special formatting is needed.								
23									
24	Example								
25	The following tables were used by a publican to calculate the cost of a single bottle								
26	of champagne, by dividing the cost of the crate by the quantity of bottles in the crate.								
27									
28	Table 1 shows what happens when the value zero 0 is entered as the number of bottles.								
29	The #DIV/0 indicates that an attempt was made to divide by zero 0, which Excel does not do.								
30									
31	Table 1								
32				Cost Of Crate :	£24				
33				Bottles In Crate :	0				
34				Cost of single bottle :	#DIV/0!	=E32/E33			
35									
36									
37	Table 2 shows how this error can be trapped by using the =ISERR() function.								
38									
39	Table 2								
40				Cost Of Crate :	£24				
41				Bottles In Crate :	0				
42				Cost of single bottle :	Try again!	=IF(ISERR(E40/E41),"Try again!",E40/E41)			

	A	B	C	D	E	F	G	H
1	ISERROR							
2	<hr/>							
3				Cell to test	Result			
4				3	FALSE	=ISERROR(D4)		
5				#DIV/0!	TRUE	=ISERROR(D5)		
6				Err:508	TRUE	=ISERROR(D6)		
7				#VALUE!	TRUE	=ISERROR(D7)		
8				#VALUE!	TRUE	=ISERROR(D8)		
9				#VALUE!	TRUE	=ISERROR(D9)		
10				#N/A	TRUE	=ISERROR(D10)		
11	<hr/>							
12	What Does It Do ?							
13	This function tests a cell or calculation to determine whether an error has been generated.							
14	It will show TRUE for any type of error and FALSE if no error is found.							
15	<hr/>							
16	Syntax							
17	=ISERROR(CellToTest)							
18	The CellToTest can be a cell reference or a formula.							
19	<hr/>							
20	Formatting							
21	No special formatting is needed.							
22	<hr/>							
23	Example							
24	The following tables was used to calculate the difference between two dates.							
25	<hr/>							
26	Table 1 shows an error due to the fact that the first entry was entered using an inappropriate							
27	date format.							
28	<hr/>							
29	Table 1							
30				Start date :	Jan 01 98			
31				End date :	5-Jan-98			
32				Difference :	#VALUE!	=D31-D30		
33	<hr/>							
34	<hr/>							
35	Table 2 shows how the =ISERROR() function has been used to trap the error and inform the							
36	user that there has been an error in the data entry.							
37	<hr/>							
38	Table 2							
39				Start date :	Jan 01 98			
40				End date :	5-Jan-98			
41				Difference :	Error in data entry			
42	=IF(ISERROR(D40-D39),"Error in data entry",D40-D39)							

	A	B	C	D	E	F	G	H	I
1	ISEVEN								
2	<hr/>								
3			Number	Is it Even					
4			1	0	=ISEVEN(C4)				
5			2	1	=ISEVEN(C5)				
6			2.5	1	=ISEVEN(C6)				
7			2.6	1	=ISEVEN(C7)				
8			3.5	0	=ISEVEN(C8)				
9			3.6	0	=ISEVEN(C9)				
10			Hello	#VALUE!	=ISEVEN(C10)				
11			1-Feb-98	0	=ISEVEN(C11)				
12			1-Feb-96	1	=ISEVEN(C12)				
13									
14									
15	What Does It Do ?								
16	This function tests a number to determine whether it is even.								
17	An even number is shown as TRUE an odd number is shown as FALSE.								
18	Note that decimal fractions are ignored.								
19	Note that dates can be even or odd.								
20	Note that text entries result in the #VALUE! error.								
21									
22	Syntax								
23	=ISEVEN(CellToTest)								
24									
25	Formatting								
26	No special formatting is required.								

	A	B	C	D	E	F	G	H	I	J
1	ISLOGICAL									
2										
3				Cell To Test	Result					
4				FALSE	TRUE	=ISLOGICAL(D4)				
5				TRUE	TRUE	=ISLOGICAL(D5)				
6					FALSE	=ISLOGICAL(D6)				
7				20	FALSE	=ISLOGICAL(D7)				
8				1-Jan-98	FALSE	=ISLOGICAL(D8)				
9				Hello	FALSE	=ISLOGICAL(D9)				
10				#DIV/0!	FALSE	=ISLOGICAL(D10)				
11										
12	What Does It Do ?									
13	This function tests a cell to determine whether the cell contents are logical.									
14	The logical values can only be TRUE or FALSE.									
15	If the cell does contain a logical value, the result TRUE is shown.									
16	If the cell does not contain a logical value, the result FALSE is shown.									
17										
18	Syntax									
19	=ISLOGICAL(CellToTest)									
20										
21	Formatting									
22	No special formatting is needed.									

	A	B	C	D	E	F	G	H	I	J
1	ISNA									
2										
3			Number	Result						
4			1	FALSE	=ISNA(C4)					
5			Hello	FALSE	=ISNA(C5)					
6				FALSE	=ISNA(C6)					
7			1-Jan-98	FALSE	=ISNA(C7)					
8			#N/A	TRUE	=ISNA(C8)					
9										
10										
11	What Does It Do?									
12	This function tests a cell to determine whether it contains the Not Available error #N/A.									
13	The #N/A is generated when a function cannot work properly because of missing data.									
14	The #N/A can also be typed in to a cell by the user to indicate the cell is currently empty,									
15	but will be used for data entry in the future.									
16	The function is normally used with other functions such as the =IF() function.									
17										
18	Syntax									
19	=ISNA(CellToTest)									
20										
21	Formatting									
22	No special formatting is needed.									

	A	B	C	D	E	F	G	H
1	ISNONTEXT							
2								
3			Item To Test	Is It A Number?				
4			10	TRUE	=ISNONTEXT(C4)			
5			Hello	FALSE	=ISNONTEXT(C5)			
6				TRUE	=ISNONTEXT(C6)			
7			1-Jan-98	TRUE	=ISNONTEXT(C7)			
8			100	FALSE	=ISNONTEXT(C8)			
9								
10	What Does It Do?							
11	This functions tests an entry to determine whether it is a number, rather than text.							
12	It would be used to ensure that only numeric entries are used in calculations, rather							
13	than text which looks like a number, such as typing the letter O instead of zero 0.							
14	The function is normally used with other function such as the =IF() function.							
15								
16	Syntax							
17	=ISNONTEXT(CellToTest)							
18								
19	Formatting							
20	No special formatting.							
21								
22	Examples							
23	The following table is used by an electrical retailer to calculate the selling price							
24	of an item based on the buying price and the shop mark-up.							
25								
26	Table 1 shows the #VALUE! error generated when a number, 300, is entered							
27	using the letter O instead of the zero 0.							
28	Table 1							
29			Item	Buying Price	Mark-up	Profit		
30			Radio	400	150%	600		
31			TV	800	200%	1600		
32			Video	300	150%	#VALUE!	=D32*E32	
33								
34	Table 2 shows how the error is trapped using the =ISNONTEXT function and							
35	the =IF() function in the calculation.							
36	Table 2							
37			Item	Buying Price	Mark-up	Profit		
38			Radio	400	150%	600		
39			TV	800	200%	1600		
40			Video	300	150%	Retype the Price		
41	=IF(ISNONTEXT(D40),D40*E40,"Retype the Price")							

	A	B	C	D	E	F	G	H	I	J
1	ISNUMBER									
2										
3				Cell Entry	Result					
4				1	TRUE	=ISNUMBER(D4)				
5				1-Jan-98	TRUE	=ISNUMBER(D5)				
6					FALSE	=ISNUMBER(D6)				
7				#DIV/0!	FALSE	=ISNUMBER(D7)				
8				Hello	FALSE	=ISNUMBER(D8)				
9										
10	What Does It Do ?									
11	This function examines a cell or calculation to determine whether it is a numeric value.									
12	If the cell or calculation is a numeric value the result TRUE is shown.									
13	If the cell or calculation is not numeric, or is blank, the result FALSE is shown.									
14										
15	Syntax									
16	=ISNUMBER(CellToTest)									
17	The cell to test can be a cell reference or a calculation.									
18										
19	Formatting									
20	No special formatting is needed.									
21										
22	Example									
23	The following table was used by a personnel department to lookup the salary of an employee.									
24	The employee can be entered as a Name or as a Numeric value.									
25	The =ISNUMBER() function has been used to identify the type of entry made, and then									
26	the =IF() decides which VLOOKUP to perform.									
27										
28			ID No.	Name	Salary					
29			1	Alan	£10,000					
30			2	Eric	£12,000					
31			3	Carol	£8,000					
32			4	Bob	£15,000					
33			5	David	£12,000					
34										
35			Type Employee Name or ID :	eric						
36			The Salary is :	£12,000						
37	=IF(ISNUMBER(E35),VLOOKUP(E35,C29:E33,3,FALSE),VLOOKUP(E35,D29:E33,2,FALSE))									

	A	B	C	D	E	F	G	H	I	J
1	ISODD									
2										
3			Number	Is it Odd						
4			1	1	=ISODD(C4)					
5			2	0	=ISODD(C5)					
6			2.5	0	=ISODD(C6)					
7			2.6	0	=ISODD(C7)					
8			3.5	1	=ISODD(C8)					
9			3.6	1	=ISODD(C9)					
10			Hello	#VALUE!	=ISODD(C10)					
11			1-Feb-98	1	=ISODD(C11)					
12			1-Feb-96	0	=ISODD(C12)					
13										
14										
15	What Does It Do ?									
16	This function tests a number to determine whether it is odd.									
17	An odd number is shown as TRUE an even number is shown as FALSE.									
18	Note that decimal fractions are ignored.									
19	Note that dates can be odd or even.									
20	Note that text entries result in the #VALUE! error.									
21										
22	Syntax									
23	=ISODD(CellToTest)									
24										
25	Formatting									
26	No special formatting is required.									

	A	B	C	D	E	F	G	H	I
1	ISREF								
2									
3				TRUE	=ISREF(A1)				
4				FALSE	=ISREF(B99)				
5				Err:508	=ISREF>Hello)				
6				FALSE	=ISREF(10)				
7				FALSE	=ISREF(NOW())				
8				FALSE	=ISREF("A1")				
9				Err:508	=ISREF(XX99)				
10									
11	What Does It Do ?								
12	This function shows TRUE if given a cell address, or FALSE for any other type of value.								
13	Its a bit of an odd one, and is normally used in macros rather than on the worksheet.								
14									
15	Syntax								
16	=ISREF(ValueToTest)								
17	The ValueToTest can be any type of data, but when used on the worksheet, it cannot be a								
18	reference to the contents of another cell, as the reference will itself be evaluated by the function.								
19									
20	Formatting								
21	No special formatting is needed.								

	A	B	C	D	E	F	G	H	I
1	ISTEXT								
2									
3				Cell To Test	Result				
4				Hello	TRUE	=ISTEXT(D4)			
5				1	FALSE	=ISTEXT(D5)			
6				25-Dec-98	FALSE	=ISTEXT(D6)			
7					FALSE	=ISTEXT(D7)			
8									
9	What Does It Do ?								
10	This functions tests an entry to determine whether it is text.								
11	If the entry is text is shows TRUE.								
12	If the entry is any other type it shows FALSE.								
13									
14	Syntax								
15	=ISTEXT(CellToTest)								
16									
17	Formatting								
18	No special formatting is needed.								
19									
20	Example								
21	The following table was used by a personnel department to lookup the salary of an employee.								
22	The employee can be entered as a Name or as a Numeric value.								
23	The =ISTEXT() function has been used to identify the type of entry made, and then								
24	the =IF() decides which VLOOKUP to perform.								
25									
26			ID No.	Name	Salary				
27			1	Alan	£10,000				
28			2	Eric	£12,000				
29			3	Carol	£8,000				
30			4	Bob	£15,000				
31			5	David	£12,000				
32									
33	Type Employee Name or ID :				3				
34	The Salary is :				£8,000				
35	=IF(ISTEXT(E33),VLOOKUP(E33,D27:E31,2,FALSE),VLOOKUP(E33,C27:E31,3,FALSE))								

	A	B	C	D	E	F	G	H	I	J
1	LARGE									
2										
3			Values		Highest Value	800	=LARGE(C4:C8,1)			
4			120		2nd Highest Value	250	=LARGE(C4:C8,2)			
5			800		3rd Highest Value	120	=LARGE(C4:C8,3)			
6			100		4th Highest Value	120	=LARGE(C4:C8,4)			
7			120		5th Highest Value	100	=LARGE(C4:C8,5)			
8			250							
9										
10	What Does It Do ?									
11	This function examines a list of values and picks the value at a user specified position									
12	in the list.									
13										
14	Syntax									
15	=LARGE(ListOfNumbersToExamine,PositionToPickFrom)									
16										
17	Formatting									
18	No special formatting is needed.									
19										
20	Example									
21	The following table was used to calculate the top 3 sales figures between Jan, Feb and Mar.									
22										
23			Sales	Jan	Feb	Mar				
24			North	£5,000	£6,000	£4,500				
25			South	£5,800	£7,000	£3,000				
26			East	£3,500	£2,000	£10,000				
27			West	£12,000	£4,000	£6,000				
28										
29			Highest Value		£12,000		=LARGE(D24:F27,1)			
30			2nd Highest Value		£10,000		=LARGE(D24:F27,2)			
31			3rd Highest Value		£7,000		=LARGE(D24:F27,3)			
32										
33	Note									
34	Another way to find the Highest and Lowest values would have been to use									
35	the =MAX() and =MIN() functions.									
36										
37				Highest	£12,000		=MAX(D24:F27)			
38				Lowest	£2,000		=MIN(D24:F27)			

	A	B	C	D	E	F	G	H	I	J
1	LCM									
2										
3			Numbers		Least Common Multiple					
4			6	20	60	=LCM(C4,D4)				
5			12	18	36	=LCM(C5,D5)				
6			34	96	1632	=LCM(C6,D6)				
7										
8	What Does It Do ?									
9	This function calculate the Least Common Multiple, which is the smallest number									
10	that can be divided by each of the given numbers.									
11										
12	Syntax									
13	=LCM(Number1,Number2,Number3... through to Number29)									
14										
15	Formatting									
16	No special formatting is needed.									

	A	B	C	D	E	F	G	H	I
1	LEFT								
2	<hr/>								
3			Text	Number Of Characters Required	Left String				
4			Alan Jones	1	A	=LEFT(C4,D4)			
5			Alan Jones	2	Al	=LEFT(C5,D5)			
6			Alan Jones	3	Ala	=LEFT(C6,D6)			
7			Cardiff	6	Cardif	=LEFT(C7,D7)			
8			ABC123	4	ABC1	=LEFT(C8,D8)			
9	<hr/>								
10	What Does It Do ?								
11	This function displays a specified number of characters from the left hand side of a								
12	piece of text.								
13	<hr/>								
14	Syntax								
15	=LEFT(OriginalText,NumberOfCharactersRequired)								
16	<hr/>								
17	Formatting								
18	No special formatting is needed.								
19	<hr/>								
20	Example								
21	The following table was used to extract the first name of a person from their full name.								
22	The =FIND() function was used to locate position of the space between the first and second name.								
23	The length of the first name is therefore the position of the space minus one character.								
24	The =LEFT() function can now extract the first name based on the position of the space.								
25	<hr/>								
26			Full Name	First Name					
27			Alan Jones	Alan	=LEFT(C27,FIND(" ",C27)-1)				
28			Bob Smith	Bob	=LEFT(C28,FIND(" ",C28)-1)				
29			Carol Williams	Carol	=LEFT(C29,FIND(" ",C29)-1)				

	A	B	C	D	E	F	G	H	I
1	LEN								
2									
3			Text	Length					
4			Alan Jones	10	=LEN(C4)				
5			Bob Smith	9	=LEN(C5)				
6			Carol Williams	14	=LEN(C6)				
7			Cardiff	7	=LEN(C7)				
8			ABC123	6	=LEN(C8)				
9									
10	What Does It Do ?								
11	This function counts the number of characters, including spaces and numbers, in a piece of text.								
12									
13	Syntax								
14	=LEN(Text)								
15									
16	Formatting								
17	No Special formatting is needed.								
18									
19	Example								
20	This example shows how the =LEN() function is used in a formula which extracts the								
21	second name from a text entry containing both first and second names.								
22									
23			Original Text						
24			Carol Williams	6	=FIND(" ",C24)				
25					This is the position of the space.				
26									
27			Carol Williams	8	=LEN(C24)-FIND(" ",C24)				
28					This is the length of the second name.				
29					Calculated by taking the overall length of the complete				
30					name and subtracting the position of the space.				
31									
32					=RIGHT(C24,LEN(C24)-FIND(" ",C24))				
33					This is just the second name.				
34					Calculated by using the =RIGHT() function to extract				
35					the rightmost characters up to the length of				
36					the second name.				

	A	B	C	D	E	F	G	H	I	J	
1	LOOKUP (Array)										
2											
3				Name	Jan	Feb	Mar				
4				Alan	10	80	97				
5				Bob	20	90	69				
6				Carol	30	100	45				
7				David	40	110	51				
8				Eric	50	120	77				
9				Francis	60	130	28				
10				Gail	70	140	73				
11											
12	Type a Name in this cell :					Eric					
13											
14	The March value for this person is :					77	=LOOKUP(F12,D4:G10)				
15											
16	What Does It Do ?										
17	This function looks for a piece of information in a list, and then picks an item from the										
18	last cell in the adjacent row or column.										
19											
20	It always picks the data from the end of the row or column, so it is no good if you need										
21	to pick data from part way across a list, (use VLOOKUP or HLOOKUP).										
22											
23	The way in which the function decides whether to pick from the row or column is based										
24	on the size of the table.										
25											
26	If the table has more rows than columns :					the function will look down the left most column					
27						trying to find a match for the piece of information					
28						you asked it to look for.					
29						When a match is found, the function will look					
30						across to the right most column to pick the					
31						last entry on the row.					
32											
33	If the table has the same amount of rows and columns :										
34						the function will look down the left most column and					
35						work in just the same way as if the table had more					
36						rows than columns, as in the description above.					
37											
38	If the table has more columns than rows :					the function will look across the top row trying					
39						to find a match for the piece of information you					
40						have asked it to look for.					
41						When a match is found, the function will then look					
42						down to the bottom cell of the column to pick					
43						the last entry of the column.					
44											
45	Syntax										
46	=LOOKUP(WhatToLookFor,RangeToLookIn)										
47	The WhatToLookFor should be a single item.										
48	The RangeToLook in can be either horizontal or vertical.										
49	Be careful not to include unnecessary heading in the range as these will cause errors.										
50											
51	Example 1					Example 2					
52	In this table there are more					In this table there are more columns than rows, so					
53	rows than columns, so the					the row heading of Jan is not included in the					

	A	B	C	D	E	F	G	H	I	J
54		column heading of Jan is				lookup range.				
55		not included in the lookup								
56		range.								
57			Jan			Jan	Alan	Bob	Carol	David
58		Alan	100				100	100	100	100
59		Bob	100							
60		Carol	100							
61		David	100							
62		Eric	100							
63		Fred	100							
64										
65		Formatting								
66		No special formatting is needed.								
67										
68		Problems								
69		The list of information to be looked through must be sorted in ascending order, otherwise errors								
70		will occur, either as #N/A or incorrect results.								
71										
72		Table 1 shows the Name column sorted alphabetically, the results of using =LOOKUP() will								
73		be correct.								
74										
75		Table 2 shows the same data, but not sorted. Sometimes the results will be correct, but other								
76		times the result will be an #N/A error or incorrect figure.								
77										
78		Table 1					Table 2			
79		Name	Jan	Feb	Mar		Name	Jan	Feb	Mar
80		Alan	10	80	97		David	40	110	51
81		Bob	20	90	69		Eric	50	120	77
82		Carol	30	100	45		Alan	10	80	97
83		David	40	110	51		Bob	20	90	69
84		Eric	50	120	77		Carol	30	100	45
85		Francis	60	130	28		Francis	60	130	28
86		Gail	70	140	73		Gail	70	140	73
87										
88		Name :	Eric				Name :	Eric		
89										
90		Value :	77				Value :	77		
91			=LOOKUP(C88,B80:E86)					=LOOKUP(H88,G80:J86)		

	A	B	C	D	E	F	G	H	I	J	
1	LOOKUP (Vector)										
2											
3				Name	Jan	Feb	Mar				
4				Alan	10	80	97				
5				Bob	20	90	69				
6				Carol	30	100	45				
7				David	40	110	51				
8				Eric	50	120	77				
9				Francis	60	130	28				
10				Gail	70	140	73				
11											
12	Type a Name in this cell :					Eric					
13											
14	The Feb value for this person is :					120 =LOOKUP(F12,D4:G10,F4:F10)					
15											
16	What Does It Do ?										
17	This function looks for a piece of information in a list, and then picks an item from										
18	a second range of cells.										
19											
20	Syntax										
21	=LOOKUP(WhatToLookFor,RangeToLookIn,RangeToPickFrom)										
22	The WhatToLookFor should be a single item.										
23	The RangeToLook in can be either horizontal or vertical.										
24	The RangeToPickFrom must have the same number of cells in it as the RangeToLookin.										
25	Be careful not to include unnecessary heading in the ranges as these will cause errors.										
26											
27	Formatting										
28	No special formatting is needed.										
29											
30	Example										
31	The following example shows how the =LOOKUP() function was used to match a name typed										
32	in cell G41 against the list of names in C38:C43. When a match is found the =LOOKUP() then										
33	picks from the second range E38:J38.										
34	If the name Carol is used, the match is made in the third cell of the list of names, and then										
35	the function picks the third cell from the list of values.										
36											
37			RangeToLookIn	RangeToPickFrom							
38			Alan	5	10	15	20	25	30		
39			Bob								
40			Carol								
41			David	Type a name :		Carol					
42			Eric	Value :		15					
43			Fred								=LOOKUP(G41,C38:C43,E38:J38)
44											
45											
46	Problems										
47	The list of information to be looked through must be sorted in ascending order, otherwise errors										
48	will occur, either as #N/A or incorrect results.										

	A	B	C	D	E	F	G	H
1	LOWER							
2								
3			Upper Case Text	Lower Case				
4			ALAN JONES	alan jones	=LOWER(C4)			
5			BOB SMITH	bob smith	=LOWER(C5)			
6			CAROL WILLIAMS	carol williams	=LOWER(C6)			
7			CARDIFF	cardiff	=LOWER(C7)			
8			ABC123	abc123	=LOWER(C8)			
9								
10	What Does It Do ?							
11			This function converts all characters in a piece of text to lower case.					
12								
13	Syntax							
14			=LOWER(TextToConvert)					
15								
16	Formatting							
17			No special formatting is needed.					

	A	B	C	D	E	F	G	H	I	
1	MATCH									
2										
3					Names				Values	
4					Bob				250	
5					Alan				600	
6					David				1000	
7					Carol				4000	
8										
9		Type a name to look for :			Alan		Type a value :		1000	
10										
11		The position of Alan is :			2		Value position :		3	
12					=MATCH(E9,E4:E7,0)			=MATCH(I9,I4:I7,1)		
13										
14	What Does It Do ?									
15	This function looks for an item in a list and shows its position.									
16	It can be used with text and numbers.									
17	It can look for an exact match or an approximate match.									
18										
19	Syntax									
20	=MATCH(WhatToLookFor,WhereToLook,TypeOfMatch)									
21	The TypeOfMatch either 0, 1 or -1.									
22										
23	Using 0 will look for an exact match. If no match is found the #NA error will be shown.									
24										
25	Using 1 will look for an exact match, or the next lowest number if no exact match exists.									
26	If there is no match or next lowest number the error #NA is shown.									
27	The list of values being examined must be sorted for this to work correctly.									
28										
29	Using -1 will look for an exact match, or the next highest number if no exact match exists.									
30	If there is no exact match or next highest number the error #NA is shown.									
31	The list must be sorted for this to work properly.									
32										
33	Examples 1									
34	Using the 0 option suitable for an exact match.									
35	The Ascending list gives the exact match.									
36	The Descending list gives the exact match.									
37	The Wrong Value list cannot find an exact match, so the #NA is shown.									
38										
39		Ascending			Descending		Wrong Value			
40		10			40		10			
41		20			30		20			
42		30			20		30			
43		40			10		40			
44										
45		20			20		25			
46		2			3		#N/A			
47		=MATCH(G45,G40:G43,0)								
48										
49										
50	Example 2									
51	Using the 1 option suitable for a ascending list to find an exact or next lowest match.									
52	The Ascending list gives the exact match.									
53	The Descending list gives the #NA error.									

	A	B	C	D	E	F	G	H	I
54			The Wrong Value list finds the next lowest number..						
55									
56			Ascending		Descending		Wrong Value		
57			10		40		10		
58			20		30		20		
59			30		20		30		
60			40		10		40		
61									
62			20		20		25		
63			2		#N/A		2		
64							=MATCH(G62,G57:G60,1)		
65									
66									
67			Example 3						
68			Using the -1 option suitable for a descending list to find an exact or next highest match.						
69			The Ascending list gives the #NA error.						
70			The Descending list gives the exact match.						
71			The Wrong Value list finds the next highest number.						
72									
73			Ascending		Descending		Wrong Value		
74			10		40		40		
75			20		30		30		
76			30		20		20		
77			40		10		10		
78									
79			20		20		25		
80			2		3		2		
81							=MATCH(G79,G74:G77,-1)		
82									
83									
84			Example 4						
85			The tables below were used to by a bus company taking booking for bus tours.						
86			They need to allocate a bus with enough seats for the all the passengers.						
87			The list of bus sizes has been entered in a list.						
88			The number of passengers on the tour is then entered.						
89			The =MATCH() function looks down the list to find the bus with enough seats.						
90			If the number of passengers is not an exact match, the next biggest bus will be picked.						
91			After the =MATCH() function has found the bus, the =INDEX() function has been used						
92			to look down the list again and pick out the actual bus size required.						
93									
94				Bus Size		Passengers on the tour :	23		
95			Bus 1	54		Bus size needed :	50		
96			Bus 2	50		=INDEX(D95:D99,MATCH(H94,D95:D99,-1),0)			
97			Bus 3	22					
98			Bus 4	15					
99			Bus 5	6					
100									
101									
102			Example 5						
103			The tables below were used by a school to calculate the exam grades for pupils.						
104			The list of grade breakpoints was entered in a list.						
105			The pupils scores were entered in another list.						
106			The pupils scores are compared against the breakpoints.						

	A	B	C	D	E	F	G	H	I	
107			If an exact match is not found, the next lowest breakpoint is used.							
108			The =INDEX() function then looks down the Grade list to find the grade.							
109										
110			Exam Score	Grade			Pupil Score	Grade		
111			0	Fail		Alan	60	Pass		
112			50	Pass		Bob	6	Fail		
113			90	Merit		Carol	97	Distinction		
114			95	Distinction		David	89	Pass		
115					=INDEX(D111:D114,MATCH(G114,C111:C114,1),0)					

	A	B	C	D	E	F	G	H	I
1	MAX								
2									
3			Values					Maximum	
4			120	800	100	120	250	800	=MAX(C4:G4)
5									
6			Dates					Maximum	
7			1-Jan-98	25-Dec-98	31-Mar-98	27-Dec-98	4-Jul-98	27-Dec-98	=MAX(C7:G7)
8									
9	What Does It Do ?								
10	This function picks the highest value from a list of data.								
11									
12	Syntax								
13	=MAX(Range1,Range2,Range3... through to Range30)								
14									
15	Formatting								
16	No special formatting is needed.								
17									
18	Example								
19	In the following example the =MAX() function has been used to find the highest value for								
20	each region, month and overall.								
21									
22	Sales	Jan	Feb	Mar			Region Max		
23	North	£5,000	£6,000	£4,500			£6,000	=MAX(C23:E23)	
24	South	£5,800	£7,000	£3,000			£7,000		
25	East	£3,500	£2,000	£10,000			£10,000		
26	West	£12,000	£4,000	£6,000			£12,000		
27									
28	Month Max	£12,000	£7,000	£10,000					
29								=MAX(E23:E26)	
30	Overall Max	£12,000							
31								=MAX(C23:E26)	

	A	B	C	D	E	F	G	H	I	J
1	MEDIAN									
2										
3			Value1	Value2	Value3	Value4	Value5	Median		
4			20	50	10	30	40	30	=MEDIAN(C4:G4)	
5										
6			2000	1000	10	20	8000	1000	=MEDIAN(C6:G6)	
7										
8			10	20	40	40	40	40	=MEDIAN(C8:G8)	
9										
10			Value1	Value2	Value3	Value4		Median		
11			20	40	30	10		25	=MEDIAN(C11:F11)	
12										
13			20	20	40	20		20	=MEDIAN(C13:F13)	
14										
15	What Does It Do ?									
16	This function finds the median value of a group of values.									
17	The median is not the average, it is the half way point where half the numbers in the group are									
18	larger than it and half the numbers are less than it.									
19	If there is no exact median number in the group, the two nearest the half way point are									
20	added and their average is used as the median.									
21										
22	Syntax									
23	=MEDIAN(Range1,Range2,Range3... through to Range30)									
24										
25	Formatting									
26	No special formatting is needed.									

	A	B	C	D	E	F	G	H
53			Find the first /, plus 1 for the Start of the code.					
54			Find the second /, occurring after the first /					
55			Calculate the length of the text to extract, by subtracting the position					
56			of the first / from the position of the second /					

	A	B	C	D	E	F	G	H	I
57			The three formula above have also been formatted as hh:mm using						
58			the Format, Cells, Number, Time command.						

	A	B	C	D	E	F	G	H	I	J	
1	MMULT										
2											
3	What Does It Do ?										
4	This function multiplies one range of values with another range of values.										
5	The ranges do not have to be of equal size.										
6	The dimensions of the result range is in direct proportion to dimensions of the two input ranges.										
7	It is an Array function and must be entered using the Ctrl+Shift+Enter combination.										
8											
9	Syntax										
10	=MMULT(Range1,Range2)										
11											
12	Formatting										
13	No special formatting is needed.										
14											
15	Example										
16	The following tables were used by a company producing boxes of chocolates.										
17	The types of chocolate produced were Milk, Dark and White.										
18	The company boxed the chocolates in three differing mixtures of Milk, Dark and White.										
19	In the run up to Christmas customers ordered various quantities of each box.										
20	The chocolate company now needed to know what quantity of each type of chocolate to produce.										
21	The =MMULT() function was used to multiply the contents of boxes by the customer orders.										
22	The result of the =MMULT() is the total number of each type of chocolate to produce.										
23											
24	Chocolates in the box										
25	Size	Milk	Dark	White							
26	Giant	50	50	50							
27	Standard	30	20	10							
28	Economy	20	5	5							
29											
30	Customers Orders										
31		Giant	Standard	Economy							
32		300	400	500							
33											
34	Quantity To Produce										
35		Milk	Dark	White							
36		37,000	25,500	21,500							
37											
38	{=MMULT(C32:E32,C26:E28)}										
39	<i>In all three cells</i>										
40											
41	How It Was Done										
42	Cells C36 to E36 were selected.										
43	The formula =MMULT(C32:E32,C26:E28) was typed, (but not yet entered).										
44	The keys Ctrl+Shift+Enter were pressed to confirm the entry as an array.										
45	The formula then showed the correct result.										
46											
47	Getting The Dimensions Correct										
48	The dimensions of the Result range are directly related to the two input ranges.										
49	The number of rows in the Result should be equal to the rows in Range1.										
50	The number of columns in the Result should be equal to the columns in Range2.										
51											
52	Example 2										
53	The following tables were used by the chocolate company to calculate the amount of										
54	ingredients needed to produce batches of chocolate.										

55	A	B	C	D	E	F	G	H	I	J
56	The company has four factories, each of which has to order enough Butter, Eggs and Sugar									
57	to ensure they can meet production targets.									
58										
59	Range 1 contains the planned production of Milk and Dark chocolate for each factory.									
60	Range 2 contains the amount Butter, Eggs and Sugar needed to make 1 unit of Milk or Plain.									
61	The Result range shows the quantities of each ingredient that will have to be ordered to									
62	meet the production target.									
63										
64	Note the depth of the Result is the same as the depth of Range 1, and the width of									
65	the Result is the same as the width of Range 2.									
66										
67	Range 1				Range 2					
68	Production	Milk	Dark		Ingredients	Butter	Eggs	Sugar		
69	Factory 1	20	0		Milk	1	3	10		
70	Factory 2	20	1		Dark	2	2	5		
71	Factory 3	10	5							
72	Factory 4	20	10							
73										
74	Result									
75	Ingredients To Order	Butter	Eggs	Sugar						
76	Factory 1	20	60	200						
77	Factory 2	22	62	205						
78	Factory 3	20	40	125						
79	Factory 4	40	80	250						
80										
81					{=MMULT(C69:D72,G69:I70)}					
82					In all cells					
83										
84										
85										
86	Hint									
87	To get a feel for how the =MMULT() function operates, set all values in Range1 and Range2									
88	to zero 0, then change a single value in each.									

	A	B	C	D	E	F	G	H	I
1	MOD								
2									
3			Number	Divisor	Remainder				
4			12	5	2	=MOD(C4,D4)			
5			20	7	6	=MOD(C5,D5)			
6			18	3	0	=MOD(C6,D6)			
7			9	2	1	=MOD(C7,D7)			
8			24	7	3	=MOD(C8,D8)			
9									
10	What Does It Do ?								
11	This function calculates the remainder after a number has been divided by another number.								
12									
13	Syntax								
14	=MOD(Number,Divisor)								
15									
16	Formatting								
17	No special formatting is needed.								

	A	B	C	D	E	F	G	H	I	J
1	MODE									
2										
3			Value1	Value2	Value3	Value4	Value5	Mode		
4			20	50	10	10	40	10	=MODE(C4:G4)	
5										
6			40	20	40	10	40	40	=MODE(C6:G6)	
7										
8			10	10	99	20	20	10	=MODE(C8:G8)	
9			20	20	99	10	10	10	=MODE(C9:G9)	
10			10	20	20	99	10	10	=MODE(C10:G10)	
11										
12			10	20	30	40	50	#VALUE!	=MODE(C12:G12)	
13										
14	What Does It Do ?									
15	This function displays the most frequently occurring number in a group of numbers.									
16	For it to work correctly there must be at least two numbers which are the same.									
17	If all the values in the group are unique the function shows the error #N/A.									
18	When there is more than one set of duplicates, the number closest to the beginning									
19	of the group will be used. (Which is not really an accurate answer!)									
20										
21	Syntax									
22	=MODE(Range1,Range2,Range3... through to Range30)									
23										
24	Formatting									
25	No special formatting is needed.									
26										
27	Example									
28	The following table shows garments sold in a clothes shop.									
29	The shopkeeper wants to keep track of the most commonly sold size.									
30	The =MODE() function has been used to calculate this.									
31										
32	Order	Garment	Size							
33	001	Blouse	10				Most frequently ordered size :	10		
34	002	Skirt	10						=MODE(D33:D52)	
35	003	Shirt	8							
36	004	Blouse	10							
37	005	Skirt	12				Count of size 8 :	6		
38	006	Dress	8						=COUNTIF(D33:D52,"8")	
39	007	Shirt	10							
40	008	Blouse	10				Count of size 10 :	11		
41	009	Dress	8						=COUNTIF(D33:D52,"10")	
42	010	Shirt	10							
43	011	Dress	12				Count of size 12 :	3		
44	012	Skirt	12						=COUNTIF(D33:D52,"12")	
45	013	Skirt	10							
46	014	Shirt	10							
47	015	Dress	8							
48	016	Shirt	10							
49	017	Blouse	10							
50	018	Blouse	8							
51	019	Dress	10							
52	020	Skirt	8							
53										
54	Note									

	A	B	C	D	E	F	G	H	I	J
55		If the =AVERAGE() function had been used the answer would have been :							9.7	
56		This figure is of no benefit to the shopkeeper as there are no garmets of this size!								

	A	B	C	D	E	F	G	
1	MONTH							
2								
3			Original Date	Month				
4			1-Jan-98	1	=MONTH(C4)			
5			1-Jan-98	December	=MONTH(C5)			
6								
7	What Does It Do?							
8	This function extracts the month from a complete date.							
9								
10	Syntax							
11	=MONTH(Date)							
12								
13	Formatting							
14	Normally the result will be a number, but this can be formatted to show the actual							
15	month by using Format,Cells,Number,Custom and using the code mmm or mmmm.							
16								
17	Example							
18	The =MONTH function has been used to calculate the name of the month for your birthday.							
19								
20	Please enter your date of birth in the format dd/mm/yy					3/25/1962		
21					You were born in	January	=MONTH(F20)	

	A	B	C	D	E	F	G	H	I	J
1	MROUND									
2										
3			Number	Multiple	Rounded Value					
4			110	50	100	=MROUND(C4,D4)				
5			120	50	100	=MROUND(C5,D5)				
6			150	50	150	=MROUND(C6,D6)				
7			160	50	150	=MROUND(C7,D7)				
8			170	50	150	=MROUND(C8,D8)				
9										
10	What Does It Do ?									
11	This function rounds a number up or down to the nearest multiple specified by the user.									
12										
13	Syntax									
14	=MROUND(NumberToRound,MultipleToUse)									
15										
16	Formatting									
17	No special formatting is needed.									

	A	B	C	D	E	F	G	H	I	J
1	N									
2										
3			Original	Converted						
4			1	1	=N(C4)					
5			3 1/2	3.5	=N(C5)					
6			3.5	3.5	=N(C6)					
7			3.50%	0.035	=N(C7)					
8			25-Dec-98	36154	=N(C8)					
9			TRUE	1	=N(C9)					
10			FALSE	0	=N(C10)					
11			Hello	0	=N(C11)					
12				0	=N(C12)					
13										
14			What Does It Do ?							
15			This function converts a numeric entry to its mathematical value.							
16			Anything which will not convert is shown as 0 zero.							
17			Excel does not really need this function, due to the fact that Excel calculates in this way							
18			naturally. The function is included for compatibility with other spreadsheet programs.							
19										
20			Syntax							
21			=N(NumericEntry)							
22										
23			Formatting							
24			No special formatting is needed.							

	A	B	C	D	E	F	G	H	I
1	NA								
2									
3				#N/A	=NA()				
4									
5			Value	Test					
6			10	11	=IF(ISBLANK(C6),NA(),C6+1)				
7				#N/A	=IF(ISBLANK(C7),NA(),C7+1)				
8			30	31	=IF(ISBLANK(C8),NA(),C8+1)				
9									
10				Sales					
11			North	100					
12			South	#N/A	=NA()				
13			East	#N/A	=NA()				
14			West	200					
15			Total	#N/A	=SUM(D11:D14)				
16									
17									
17	What Does It Do ?								
18	This function is a place marker used to indicate that required information is Not Available.								
19	It can be type directly in to a cell as =NA() or it can be used as part of a calculation.								
20	When the =NA() is used, any calculations which depend upon the cell will also show #NA.								
21	It is used to indicate that all the data has not yet been entered in to the spreadsheet.								
22									
23									
23	Syntax								
24	=NA()								
25									
26									
26	Formatting								
27	No special formatting is required.								
28									
29									
29	Example								
30	The following table was used by a company to calculate the monthly Wage of an employee.								
31	The Salary and Tax percentage are entered.								
32	The Tax is then deducted from the Salary to calculate the Wage.								
33									
34	Table 1 shows that when the Tax is not entered, the Wage is still calculated.								
35	On a large spreadsheet this may go unnoticed and the wrong Wage paid.								
36									
37	Table 1								
38			Salary	Tax %	Pay				
39	Alan		1000	25%	750	=C39-C39*D39			
40	Bob		1000		1000	=C40-C40*D40			
41	Carol		1000	20%	800	=C41-C41*D41			
42									
43									
44	Table 2 shows how the =NA() has been inserted in the unknown Tax to act as a								
45	reminder that the Tax still needs to be entered.								
46									
47	Table 2								
48			Salary	Tax %	Pay				
49	Alan		1000	25%	750	=C49-C49*D49			
50	Bob		1000	#N/A	#N/A	=C50-C50*D50			
51	Carol		1000	20%	800	=C51-C51*D51			

	A	B	C	D	E	F
1	NETWORKDAYS					
2						
3			Start Date	End Date	Work Days	
4			1-Mar-98	7-Mar-98	5	=NETWORKDAYS(C4,D4)
5			25-Apr-98	30-Jul-98	69	=NETWORKDAYS(C5,D5)
6			24-Dec-98	5-Jan-99	9	=NETWORKDAYS(C6,D6)
7						
8	What Does It Do?					
9	This function will calculate the number of working days between two dates.					
10	It will exclude weekends and any holidays.					
11						
12	Syntax					
13	=NETWORKDAYS(StartDate,EndDate,Holidays)					
14	Holidays : This is a list of dates which will be excluded from the calculation, such as Xmas					
15	and Bank holidays.					
16						
17	Formatting					
18	The result will be shown as a number.					
19						
20	Note					
21	The calculation does not include the last day. The result of using 1-Jan-98 and 5-Jan-98 will					
22	give a result of 4. To correct this add 1 to the result. =NETWORKDAYS(Start,End,Holidays)+1					
23						
24	Example					
25	The following example shows how a list of Holidays can be created.					
26						
27		Start Date	End Date	Work Days		
28		Mon 02-Mar-98	Fri 06-Mar-98	5	=NETWORKDAYS(B28,C28,C33:C37)	
29		Mon 02-Mar-98	Fri 13-Mar-98	10	=NETWORKDAYS(B29,C29,C33:C37)	
30		Mon 27-Apr-98	Fri 01-May-98	4	=NETWORKDAYS(B30,C30,C33:C37)	
31						
32		Holidays				
33	Bank Holiday	1-May-98				
34	Xmas	25-Dec-98				
35	New Year	1-Jan-97				
36	New Year	1-Jan-98				
37	New Year	1-Jan-99				

	A	B	C	D	E	F	G	H	I	J
1	NOT									
2										
3			Cells To Test	Result						
4			10	20	TRUE	=NOT(C4>D4)				
5			10	20	TRUE	=NOT(C5=D5)				
6			10	20	FALSE	=NOT(C6<D6)				
7			1-Jan-98	1-Feb-98	TRUE	=NOT(C7>D7)				
8			Hello	Goodbye	TRUE	=NOT(C8=D8)				
9			Hello	Hello	FALSE	=NOT(C9=D9)				
10										
11	What Does It Do ?									
12	This function performs a test to see if the test fails. (A type of reverse logic).									
13	If the test fails, the result is TRUE.									
14	If the test is met, then the result is FALSE.									
15										
16	Syntax									
17	=NOT(TestToPerform)									
18	The TestToPerform can be reference to cells or another calculation.									
19										
20	Formatting									
21	No special formatting is needed.									
22										
23	Example									
24	The following table was used by a library to track books borrowed.									
25	The date the book was Taken out is entered.									
26	The period of the Loan is entered.									
27	The date the book was returned is entered.									
28	The =NOT() function has been used to calculate whether the book was returned within									
29	the correct time, by adding the Loan value to the Taken date.									
30	If the book was not returned on time the result Overdue is shown, otherwise OK is shown.									
31										
32			Taken	Loan	Returned	Status				
33			1-Jan-98	14	5-Jan-98	OK	=IF(NOT(D33<=B33+C33),"Overdue","OK")			
34			1-Jan-98	14	15-Jan-98	OK	=IF(NOT(D34<=B34+C34),"Overdue","OK")			
35			1-Jan-98	14	20-Jan-98	Overdue	=IF(NOT(D35<=B35+C35),"Overdue","OK")			

	A	B	C	D	E	F	G	H	I
1	NOW								
2									
3			The current Date and Time						
4			9/5/2015 8:08	=NOW()					
5			09/05/15 08:08 AM	=NOW()					
6									
7	What Does It Do?								
8	This function shows the current date and time. The result will be updated each time the								
9	worksheet is opened and every time an entry is made anywhere on the worksheet.								
10									
11	Syntax								
12	=NOW()								
13									
14	Formatting								
15	The result will be shown as a date and time. If it is formatted to show as a number								
16	the integer part is used for the date and the decimal portion represent the time.								

	A	B	C	D	E	F	G	H	I
1	ODD								
2									
3			Number	Rounded To Next Odd					
4			2	3	=ODD(C4)				
5			2.4	3	=ODD(C5)				
6			2.9	3	=ODD(C6)				
7			3	3	=ODD(C7)				
8			3.4	5	=ODD(C8)				
9			3.9	5	=ODD(C9)				
10									
11	What Does It Do ?								
12	This function rounds a number up to the next highest whole odd number.								
13									
14	Syntax								
15	=ODD(NumberToBeRounded)								
16									
17	Formatting								
18	No special formatting is needed.								

	A	B	C	D	E	F	G	H	I	J
1	OR									
2										
3			Order No.	Cost	Payment Type	Handling Charge				
4			AB001	1000	Cash	£-	=IF(OR(E4="Visa",E4="Delta"),5,0)			
5			AB002	1000	Visa	£5	=IF(OR(E5="Visa",E5="Delta"),5,0)			
6			AB003	2000	Cheque	£-	=IF(OR(E6="Visa",E6="Delta"),5,0)			
7			AB004	5000	Delta	£5	=IF(OR(E7="Visa",E7="Delta"),5,0)			
8										
9	What Does It Do?									
10	This function tests two or more conditions to see if any of them are true.									
11	It can be used to test that at least one of a series of numbers meets certain conditions.									
12	Normally the OR() function would be used in conjunction with a function such as =IF().									
13										
14	Syntax									
15	=OR(Test1,Test2)									
16	Note that there can be up to 30 possible tests.									
17										
18	Formatting									
19	When used by itself it will show TRUE or FALSE.									
20										
21	Example									
22	The following table shows a list of orders taken by a company.									
23	A handling charge of £5 is made on all orders paid by Visa or Delta cards.									
24	The =OR() function has been used to determine whether the charge needs to be applied.									
25										
26			Order No.	Cost	Payment Type	Handling Charge				
27			AB001	1000	Cash	£-	=IF(OR(E27="Visa",E27="Delta"),5,0)			
28			AB002	1000	Visa	£5				
29			AB003	2000	Cheque	£-				
30			AB004	5000	Delta	£5				

	A	B	C	D	E	F	G	H	I	
1	Ordering Stock									
2										
3	This is an example of a spreadsheet to calculate the best time interval to order stock.									
4										
5	Scenario									
6	A garage fits exhaust systems.									
7	The manager orders the exhausts on a regular basis.									
8	Each time an order is made for new stock, there is a fixed administrative cost.									
9	The exhausts are kept in stock until needed.									
10	Keeping the exhausts in stock incurs a cost due to capital tied up and warehouse costs.									
11	The supplier of the Exhausts gives a discount on large orders.									
12										
13	Objective									
14	Find the time interval to order stock which will result in the lowest Admin and Warehouse costs.									
15										
16	Input Data									
17	Cost of a single Exhaust system :						£75			
18	Cost of keeping Exhaust in stock. (As a % of the stock value) :						12%			
19	Quantity of Exhausts used per day :						10			
20	Admin cost each time new Exhausts are ordered :						£25			
21	Average quantity of Exhausts in stock (As % of ordered quantity) :						0.5			
22	Ordering Intervals to evaluate. (Expressed in Days) :						2			
23										
24	Suppliers first Price Break and Discount% offered :						200	1%		
25	Suppliers second Price Break and Discount% offered :						750	5%		
26										
27	Output									
28	Ordering Interval In Days	Quantity Per Order	Order Value	Order Discount	Orders Per Year	Annual Admin Cost	Annual Warehouse Costs	Annual Total	The Best Ordering Interval	
29	1	10	£750	£-	365	£9,125	£45	£9,170	-	
30	2	20	£1,500	£-	183	£4,575	£90	£4,665	-	
31	4	40	£3,000	£-	92	£2,300	£180	£2,480	-	
32	6	60	£4,500	£-	61	£1,525	£270	£1,795	-	
33	8	80	£6,000	£-	46	£1,150	£360	£1,510	-	
34	10	100	£7,500	£-	37	£925	£450	£1,375	-	
35	12	120	£9,000	£-	31	£775	£540	£1,315	-	
36	14	140	£10,500	£-	27	£675	£630	£1,305	-	
37	16	160	£12,000	£-	23	£575	£720	£1,295	-	
38	18	180	£13,500	£-	21	£525	£810	£1,335	-	
39	20	200	£15,000	£150	19	£475	£900	£1,225	Best	
40	22	220	£16,500	£165	17	£425	£990	£1,250	-	
41	24	240	£18,000	£180	16	£400	£1,080	£1,300	-	
42	26	260	£19,500	£195	15	£375	£1,170	£1,350	-	
43	28	280	£21,000	£210	14	£350	£1,260	£1,400	-	
44	30	300	£22,500	£225	13	£325	£1,350	£1,450	-	
45	32	320	£24,000	£240	12	£300	£1,440	£1,500	-	
46	34	340	£25,500	£255	11	£275	£1,530	£1,550	-	
47	36	360	£27,000	£270	11	£275	£1,620	£1,625	-	
48	38	380	£28,500	£285	10	£250	£1,710	£1,675	-	
49	40	400	£30,000	£300	10	£250	£1,800	£1,750	-	
50	42	420	£31,500	£315	9	£225	£1,890	£1,800	-	

	A	B	C	D	E	F	G	H	I
104	Column E	Orders Per Year							
105		This is how many orders will need to be made based upon the ordering interval.							
106		With an interval of 1, there will have to be 365 orders.							
107									
108		Calculation : $365/\text{OrderingInterval}$							
109		This calculation may give results which are decimal, such as 2.3							
110		This decimal will cause problems, due to the fact that the number of							
111		orders must always be a whole number.							
112		The =CEILING() function has been used to 'round up' any decimals to							
113		the next highest whole number.							
114		=CEILING(365/A29,1)							
115									
116	Column F	Annual Admin Costs							
117		This is the administration costs involved in making the orders.							
118									
119		Calculation : $\text{OrdersPerYear} * \text{AdminCost}$							
120		=E29*\$G\$20							
121									
122	Column G	Annual Warehouse Costs							
123		This is the cost of keeping the stock in the warehouse.							
124		It is based on the managers knowledge that on average the stock level is 50% of the							
125		quantity ordered.							
126									
127		Calculation : $\text{QuantityOrdered} * \text{AverageStockLevel} * \text{ExhaustCost} * \text{WarehousingCost}$							
128		=(B29*\$G\$21)*\$G\$17*\$G\$18							
129									
130	Column H	Annual Total							
131		This is the full yearly cost of ordering the Exhausts, based upon how frequently the							
132		orders are made.							
133		It does not take in to account the actual costs of the Exhausts, as the manager only							
134		wants to know what the lowest values for the overheads associated with ordering and							
135		storing the exhaust systems.							
136		However, the Discount figure is taken into account as this can be used to offset some							
137		of the overheads.							
138									
139		Calculation : $\text{AnnualAdminCosts} + \text{AnnualWarehouseCosts} - \text{OrderDiscount}$							
140		=F29+G29-D29							
141									
142	Column I	The Best Ordering Interval							
143		This shows the Best ordering interval, giving the lowest annual overheads.							
144		It compares the value in column H against the minimum value for all of column H.							
145		If the two values match the word Best is shown, otherwise a dash is shown.							
146		=IF(H29=MIN(\$H\$29:\$H\$59),"Best","-")							

	A	B	C	D	E	F	G	H	I	J
1										
2		Box size	Sample	Packer1	Packer2	Packer3	Packer4			
3		Small	1	10	10	10	10			
4		Medium	1	20	20	20	21			
5		Large	1	30	28	35	30			
6		Small	2	11	9	10	10			
7		Medium	2	21	20	0	20			
8		Large	2	31	28	30	30			
9		Small	3	8	10	12	10			
10		Medium	3	22	20	20	19			
11		Large	3	32	28	30	30			
12										
13		Box size	Sample	Packer1	Packer2	Packer3	Packer4			

	A	B	C	D	E	F	G	H
1	PERMUT							
2								
3			Pool Of Items	Items In A Group	Permutations			
4			4	2	12	=PERMUT(C4,D4)		
5			4	3	24	=PERMUT(C5,D5)		
6			10	4	5040	=PERMUT(C6,D6)		
7			26	6	165,765,600	=PERMUT(C7,D7)		
8								
9	What Does It Do ?							
10	This function calculates the maximum number of permutations given a fixed number of items.							
11	The internal order is significant, so AB and BA will be considered as two possible permutations.							
12	It could be used to calculate the possible number of 4 digit passwords from the digits 0 to 9.							
13								
14	Syntax							
15	=PERMUT(PoolToPickFrom,ItemsInAGroup)							
16								
17	Formatting							
18	No special formatting is needed.							
19								
20	Example							
21	The following table was used to calculate the total number of 8 letter passwords which can							
22	be created by using all 26 letters of the alphabet.							
23								
24			Letter In Alphabet	26				
25			Password Size	8				
26			Permutations	62,990,928,000				
27								
28								
29	In the case of a two letter password made from the letter A, B, C and D, the following							
30	twelve permutations would be possible.							
31								
32			ABCD					
33								
34			Password 1	AB	Password 7	BA		
35			Password 2	AC	Password 8	CA		
36			Password 3	AD	Password 9	DA		
37			Password 4	BC	Password 10	CB		
38			Password 5	BD	Password 11	DB		
39			Password 6	CD	Password 12	DC		

	A	B	C	D	E	F	G	H	I
1	PI								
2									
3				π					
4				3.14159265358979	=PI()				
5									
6		What Does It Do ?							
7		This function is equal to the value of Pi.							
8		It is correct to 15 decimal places.							
9		It does not need any input, it is a self contained function.							
10									
11		Syntax							
12		=PI()							
13									
14		Formatting							
15		No special formatting is needed.							
16									
17		Example							
18		To calculate the area of a circle.							
19									
20			Radius	Area					
21			5	78.54	=PI()*(C21^2)				
22			25	1963.50					

	A	B	C	D	E	F	G	H	I
1	POWER								
2	<hr/>								
3			Number	Power	Result				
4			3	2	9	=POWER(C4,D4)			
5			3	4	81	=POWER(C5,D5)			
6			5	2	25	=POWER(C6,D6)			
7			5	4	625	=POWER(C7,D7)			
8	<hr/>								
9	What Does It Do ?								
10	This function raises a number to a user specified power.								
11	It is the same as using the ^ operator, such as 3^4, which result is 81.								
12	Both the POWER() function and the ^ operator are the same as using 3*3*3*3.								
13	<hr/>								
14	Syntax								
15	=POWER(NumberToBeRaised,Power)								
16	<hr/>								
17	Formatting								
18	No special formatting is needed.								
19	<hr/>								
20	Example								
21	To calculate the area of a circle.								
22			Radius	Area					
23			5	78.54	=PI()*POWER(C22,2)				
24			25	1963.50					

	A	B	C	D	E	F	G	H	I
1	PRODUCT								
2									
3			Numbers		Product				
4			2	3	6	=PRODUCT(C4,D4)			
5			5	10	50	=PRODUCT(C5:D5)			
6			3	7	210	=PRODUCT(C6:D6,10)			
7					6300	=PRODUCT(C4:D6)			
8									
9	What Does It Do ?								
10	This function multiplies a group of numbers together.								
11	It is the same as using 2*3*5*10*3*7, which results in 6300.								
12									
13	Syntax								
14	=PRODUCT(Number1,Number2,Number3... through to Number30)								
15	or								
16	=PRODUCT(RangeOfNumbers)								
17	or								
18	=PRODUCT(Number1,Range,Number2...)								
19									
20	Formatting								
21	No special formatting is needed.								

	A	B	C	D	E	F	G	H	I
1	PROPER								
2	<hr/>								
3			Original Text	Proper					
4			alan jones	Alan Jones	=PROPER(C4)				
5			bob smith	Bob Smith	=PROPER(C5)				
6			caRol wILLIAMS	Carol Williams	=PROPER(C6)				
7			cardiff	Cardiff	=PROPER(C7)				
8			ABC123	Abc123	=PROPER(C8)				
9	<hr/>								
10	What Does It Do ?								
11	This function converts the first letter of each word to uppercase, and all subsequent letters								
12	are converted to lower case.								
13	<hr/>								
14	Syntax								
15	=PROPER(TextToConvert)								
16	<hr/>								
17	Formatting								
18	No special formatting is needed.								

	A	B	C	D	E	F	G	H	I	J	K
1	QUARTILE										
2											
3			Values		Quarter No.	Quartile					
4			1		0	1		=QUARTILE(C4:C8,E4)			
5			25		1	25		=QUARTILE(C4:C8,E5)			
6			50		2	50		=QUARTILE(C4:C8,E6)			
7			75		3	75		=QUARTILE(C4:C8,E7)			
8			100		4	100		=QUARTILE(C4:C8,E8)			
9											
10											
11			Values					Quarter No.	Quartile		
12			817	104	640	767		0	104	=QUARTILE(C12:F16,H12)	
13			748	756	369	703		1	285.75	=QUARTILE(C12:F16,H13)	
14			372	993	294	261		2	489	=QUARTILE(C12:F16,H14)	
15			487	384	185	491		3	750	=QUARTILE(C12:F16,H15)	
16			140	607	894	182		4	993	=QUARTILE(C12:F16,H16)	
17											
18	What Does It Do ?										
19	This function examines a group of values and then shows the values which are of the										
20	upper limits of the 1st, 2nd, 3rd and 4th quarters of the data.										
21	The Quartile of 0 (zero) is actually lowest value, which can be obtained using the =MIN() function.										
22	The Quartile of 4 is actually highest value, which can be obtained using the =MAX() function.										
23											
24	Syntax										
25	=QUARTILE(RangeToBeExamined,QuartileValue)										
26	The QuartileValue can only be 0,1,2,3 or 4.										
27											
28	Formatting										
29	No special formatting is needed.										

	A	B	C	D	E	F	G	H
1	QUOTIENT							
2								
3			Number	Divisor	Result			
4			12	5	2	=QUOTIENT(C4,D4)		
5			20	3	6	=QUOTIENT(C5,D5)		
6			46	15	3	=QUOTIENT(C6,D6)		
7								
8	What Does It Do ?							
9	This function calculates the number of times a number can be divided by another number.							
10	It ignores any remainder, only showing the whole number.							
11								
12	Syntax							
13	=QUOTIENT(NumberToBeDivided,Divisor)							
14								
15	Formatting							
16	No special formatting is needed.							
17								
18	Example							
19	The following example was used by a drinks merchant to calculate the number of							
20	crates which could be packed using bottles in stock.							
21	The merchant can only sell full crates.							
22								
23	Table 1 calculates the crates by simple division. This however shows							
24	decimal fractions which are not needed.							
25								
26	Table 1							
27			Item	Bottles To Pack	Bottles Per Crate	Crates Needed		
28			Wine	126	12	10.5	=D28/E28	
29			Champagne	200	8	25		
30			Rum	15	4	3.75		
31			Beer	250	20	12.5		
32								
33								
34	Table 2 uses the =QUOTIENT() function to remove the decimal fraction to							
35	give the correct result.							
36								
37	Table 2							
38			Item	Bottles To Pack	Bottles Per Crate	Crates Needed		
39			Wine	126	12	10	=QUOTIENT(D39,E39)	
40			Champagne	200	8	25		
41			Rum	15	6	2		
42			Beer	250	20	12		

	A	B	C	D	E	F	G	H	I
1	RAND								
2									
3			Random greater than or equal to 0 but less than 1.						
4						0.9479471378	=RAND()		
5									
6			Random greater than or equal to 0 but less than 10						
7						4.7277623229	=RAND()*10		
8									
9			Random between 5 and 10.						
10						6.0193887202	=RAND()*(10-5)+5		
11									
12	What Does It Do ?								
13	This function creates a random number ≥ 0 but < 1 .								
14	The number will change each time the worksheet recalculates, or when F9 is pressed.								
15									
16	Syntax								
17	=RAND()								
18									
19	Formatting								
20	No special formatting is needed.								
21									
22	Examples								
23	The following examples show how the =RAND() function has been used to randomly								
24	sort list of information.								
25									
26	A list of cards has been entered in column C, and =RAND() in column D.								
27	By clicking inside the random numbers and then using Data, Sort or the Sort button								
28	the cards will be shuffled.								
29									
30	The same technique has been used to generate a list of six winning lottery numbers.								
31									
32			Card	Random		Lottery	Random		
33			Clubs 8	0.8769252		29	0.1699954553		
34			Clubs 6	0.8391825		34	0.2606778853		
35			Diamond 9	0.0171302		30	0.2876589745		
36			Spades 13	0.0138588		41	0.6971915616		
37			Clubs 9	0.5406855		40	0.7618227105		
38			Diamond 7	0.9035582		37	0.9755925608		
39			Diamond 4	0.6920516		26	0.262363171		
40			Clubs 10	0.8477726		32	0.0907528689		
41			Spades 3	0.542806		21	0.4795026372		
42			Hearts 6	0.0171119		19	0.9395601195		
43			Hearts 4	0.7830816		7	0.115548013		
44			Diamond 8	0.4801962		10	0.7897521935		
45			Hearts 11	0.5760636		16	0.9986927991		
46			Clubs 3	0.36301		8	0.3493373359		
47			Clubs 13	0.2049042		48	0.5842056014		
48			Spades 5	0.5998862		43	0.4984403506		
49			Diamond 3	0.6390986		44	0.6418123345		
50			Spades 2	0.1685394		4	0.881140501		
51			Diamond 6	0.5135556		3	0.1494814679		
52			Clubs 5	0.9451139		45	0.6901837811		
53			Spades 1	0.9408317		47	0.1401448075		

	A	B	C	D	E	F	G	H	I
54			Clubs 12	0.7203322		49	0.3260923242		
55			Hearts 10	0.4984456		35	0.9186694976		
56			Hearts 13	0.3746823		27	0.8947367836		
57			Spades 7	0.8624985		1	0.2654217782		
58			Spades 6	0.6559573		13	0.8089322343		
59			Diamond 12	0.2821063		31	0.5804510126		
60			Hearts 3	0.2791497		5	0.4740226166		
61			Hearts 5	0.743293		18	0.5198613545		
62			Hearts 8	0.1073973		39	0.4967130108		
63			Hearts 1	0.6901154		23	0.0806885357		
64			Diamond 13	0.6237856		12	0.3728345886		
65			Hearts 9	0.5239277		11	0.3815664821		
66			Clubs 4	0.6442116		20	0.100873139		
67			Diamond 5	0.8793814		33	0.6746105992		
68			Spades 4	0.5961255		42	0.2358835475		
69			Clubs 1	0.8662916		24	0.0734075264		
70			Spades 8	0.0360237		2	0.9374127802		
71			Hearts 7	0.7371745		14	0.07435805		
72			Diamond 1	0.8480996		25	0.028072305		
73			Clubs 2	0.4283063		9	0.7684599222		
74			Hearts 2	0.2036633		38	0.3503079177		
75			Diamond 11	0.1663412		15	0.873462413		
76			Clubs 7	0.7570045		28	0.176860708		
77			Spades 12	0.8938805		17	0.8605619606		
78			Spades 10	0.5201115		6	0.1175713667		
79			Clubs 11	0.0358076		22	0.2191955957		
80			Diamond 2	0.0760913		46	0.88244649		
81			Diamond 10	0.7538494		36	0.1954455983		
82			Spades 9	0.6166307					
83			Spades 11	0.0081854					
84			Hearts 12	0.266152					

	A	B	C	D	E	F	G	H	I
1	RANDBETWEEN								
2									
3			Low	High	Random				
4			5	10	6	=RANDBETWEEN(C4,D4)			
5			1	49	11	=RANDBETWEEN(C5,D5)			
6									
7	What Does It Do ?								
8	This function produces a random whole number between two specified numbers.								
9	The random number will change each time the spreadsheet is recalculated or F9 is pressed.								
10									
11	Syntax								
12	=RANDBETWEEN(LowLimit,HighLimit)								
13									
14	Formatting								
15	No special formatting is needed.								
16									
17	Example								
18	The following table shows how the =RANDBETWEEN() has been used to generate six								
19	numbers to use for the National Lottery.								
20	Note that the function does not check to ensure all numbers are unique, the same number								
21	could be generated twice or more.								
22									
23			Lottery Numbers		The Winning Ticket!				
24			1	49	40	=RANDBETWEEN(\$C\$24,\$D\$24)			Number 1
25					17	=RANDBETWEEN(\$C\$24,\$D\$24)			Number 2
26			Press function Key		6	=RANDBETWEEN(\$C\$24,\$D\$24)			Number 3
27			F9 to recalculate.		17	=RANDBETWEEN(\$C\$24,\$D\$24)			Number 4
28					47	=RANDBETWEEN(\$C\$24,\$D\$24)			Number 5
29					40	=RANDBETWEEN(\$C\$24,\$D\$24)			Number 6
30					22	=RANDBETWEEN(\$C\$24,\$D\$24)			Bonus ball
31									
32									
33			Duplicates! Spin again						
34	{=IF(SUM(1/COUNTIF(E24:E30,E24:E30))<>7,"Duplicates! Spin again","All OK")}								
35	This formula is used to determine whether all the numbers are different.								
36	It is entered as an array using Ctrl+Shift+Enter.								

	A	B	C	D	E	F	G	H	I
1	RANK								
2									
3			Values	Ranking Position High to Low					
4			7	4	=RANK(C4,C4:C8)				
5			4	5	=RANK(C5,C4:C8)				
6			25	1	=RANK(C6,C4:C8)				
7			8	3	=RANK(C7,C4:C8)				
8			16	2	=RANK(C8,C4:C8)				
9									
10			Values	Ranking Position Low to High					
11			7	2	=RANK(C11,C11:C15,1)				
12			4	1	=RANK(C12,C11:C15,1)				
13			25	5	=RANK(C13,C11:C15,1)				
14			8	3	=RANK(C14,C11:C15,1)				
15			16	4	=RANK(C15,C11:C15,1)				
16									
17			Values	Ranking Position High to Low					
18			10	5	=RANK(C18,C18:C22)				
19			30	2	=RANK(C19,C18:C22)				
20			20	4	=RANK(C20,C18:C22)				
21			30	2	=RANK(C21,C18:C22)				
22			40	1	=RANK(C22,C18:C22)				
23									
24	What Does It Do ?								
25	This function calculates the position of a value in a list relative to the other values in the list.								
26	A typical usage would be to rank the times of athletes in a race to find the winner.								
27	The ranking can be done on an ascending (low to high) or descending (high to low) basis.								
28	If there are duplicate values in the list, they will be assigned the same rank. Subsequent ranks								
29	would not follow on sequentially, but would take into account the fact that there were duplicates.								
30	If the numbers 30, 20, 20 and 10 were ranked, 30 is ranked as 1, both 20's are ranked as 2, and								
31	the 10 would be ranked as 4.								
32									
33			Value	Rank					
34			30	1	=RANK(B34,B34:B37)				
35			20	2	=RANK(B35,B34:B37)				
36			20	2	=RANK(B36,B34:B37)				
37			10	4	=RANK(B37,B34:B37)				
38									
39	Syntax								
40	=RANK(NumberToRank,ListOfNumbers,RankOrder)								
41	The RankOrder can be 0 zero or 1.								
42	Using 0 will rank larger numbers at the top. (This is optional, leaving it out has the same effect).								
43	Using 1 will rank small numbers at the top.								
44									
45	Formatting								
46	No special formatting is needed.								
47									
48	Example								
49	The following table was used to record the times for athletes competing in a race.								
50	The =RANK() function was then used to find their race positions based upon the finishing times.								
51									

	A	B	C	D	E	F	G	H	I
52		Athlete	Time	Race Position					
53		John	1:30	4	=RANK(C53,C53:C58,1)				
54		Alan	1:45	6	=RANK(C54,C53:C58,1)				
55		David	1:02	1	=RANK(C55,C53:C58,1)				
56		Brian	1:36	5	=RANK(C56,C53:C58,1)				
57		Sue	1:27	3	=RANK(C57,C53:C58,1)				
58		Alex	1:03	2	=RANK(C58,C53:C58,1)				

	A	B	C	D	E	F	G	H	I
1	REPLACE								
2									
3			Original Text	Start Position	Characters To Replace	New Character	Modified Text		
4			ABCDEFGH	2	1	x	AxCDEFGH	=REPLACE(C4,D4,E4,F4)	
5			ABCDEFGH	2	5	x	AxGH	=REPLACE(C5,D5,E5,F5)	
6			ABCDEFGH	2	1	hello	AhelloCDEFGH	=REPLACE(C6,D6,E6,F6)	
7			ABCDEFGH	2	5	hello	AhelloGH	=REPLACE(C7,D7,E7,F7)	
8									
9	What Does It Do ?								
10	This function replaces a portion of text with a new piece of text.								
11	You need to specify where the replacement should start, how many characters to								
12	remove and what the new replacement text should be.								
13									
14	Syntax								
15	=REPLACE(OriginalText,StartPosition,NumberOfCharactersToReplace,NewText)								
16									
17	Formatting								
18	No special formatting is needed.								

	A	B	C	D	E	F	G	H	I
1	REPT								
2									
3			Text To Repeat	Number Of Repeats	Repeated Text				
4			A	3	AAA	=REPT(C4,D4)			
5			AB	3	ABABAB	=REPT(C5,D5)			
6			-	10	-----	=REPT(C6,D6)			
7			|	10	|||||||	=REPT(C7,D7)			
8									
9	What Does It Do ?								
10	This function repeats a piece of text a specified number of times.								
11	You need to specify the text to be repeated and how many times to repeat it.								
12									
13	Syntax								
14	=REPT(TextToRepeat,Repetitions)								
15	The maximum number of repetitions is 200.								
16									
17	Formatting								
18	No special formatting is needed.								
19									
20	Example 1								
21	The following table was used to display a simple histogram of sales figures.								
22	The =REPT() function uses the value of Sales, but this is divided by 100 to scale down the								
23	number of repetitions to below the maximum of 200.								
24									
25			Month	Sales					
26			Jan	£1,000	|||||||				
27			Feb	£5,000	|||||||	|||||||	|||||||	|||||||	|||||||
28			Mar	£3,000	|||||||	|||||||	|||||||	|||||||	|||||||
29			Apr	£2,000	|||||||	|||||||	|||||||	|||||||	|||||||
30					=REPT("|",D29/100)				
31									
32	Example 2								
33	The =REPT() function has been used to make a digital display for the current time.								
34	The time functions of =HOUR(), =MINUTE() and =SECOND() have been used in conjunction								
35	with the =NOW() as the basis for the number of repeats.								
36	To update the clock press the function key F9.								
37									
38			Clock						
39			Hour	||||||| 08					
40			Minute	||||||| 08					
41			Second	||||||| 17					
42									
43					=REPT("|",HOUR(NOW()))&" "&TEXT(HOUR(NOW()),"00")				
44					=REPT("|",MINUTE(NOW()))&" "&TEXT(MINUTE(NOW()),"00")				
45					=REPT("|",SECOND(NOW()))&" "&TEXT(SECOND(NOW()),"00")				

	A	B	C	D	E	F	G	H	I
1	RIGHT								
2									
3			Original Text	Number Of Characters Required	Right String				
4			Alan Jones	1	s	=RIGHT(C4,D4)			
5			Alan Jones	2	es	=RIGHT(C5,D5)			
6			Alan Jones	3	nes	=RIGHT(C6,D6)			
7			Cardiff	6	ardiff	=RIGHT(C7,D7)			
8			ABC123	4	C123	=RIGHT(C8,D8)			
9									
10	What Does It Do ?								
11	This function displays a specified number of characters from the right hand side of a								
12	piece of text.								
13									
14	Syntax								
15	=RIGHT(OriginalText,NumberOfCharactersRequired)								
16									
17	Formatting								
18	No special formatting is needed.								
19									
20	Example								
21	The following table was used to extract the second name of a person from their full name.								
22	The =FIND() function locates the position of the space between the first and second name.								
23	The length of the second name is calculated by subtracting the position of the space from								
24	the overall length of the full name.								
25	The =RIGHT() function can then extract the second name.								
26									
27			Full Name	Second Name					
28			Alan Jones	Jones	=RIGHT(C28,LEN(C28)-FIND(" ",C28))				
29			Bob Smith	Smith	=RIGHT(C29,LEN(C29)-FIND(" ",C29))				
30			Carol Williams	Williams	=RIGHT(C30,LEN(C30)-FIND(" ",C30))				

	A	B	C	D	E	F	G	H	I
1	ROMAN								
2									
3			Number	Roman					
4			1	I	=ROMAN(C4)				
5			2	II	=ROMAN(C5)				
6			3	III	=ROMAN(C6)				
7			5	V	=ROMAN(C7)				
8			10	X	=ROMAN(C8)				
9			1998	MCMXCVIII	=ROMAN(C9)				
10			1998	MCMXCVIII	=ROMAN(C10,0)				
11			1998	MLMVLIII	=ROMAN(C11,1)				
12			1998	MXMVIII	=ROMAN(C12,2)				
13			1998	MVMIII	=ROMAN(C13,3)				
14			1998	MVMIII	=ROMAN(C14,4)				
15			1998	MLMVLIII	=ROMAN(C15,TRUE)				
16			1998	MCMXCVIII	=ROMAN(C16,FALSE)				
17									
18	What Does It Do ?								
19	This function produces a number shown as Roman numerals in various formats.								
20									
21	Syntax								
22	=ROMAN(NormalNumber,RomanNumberFormat)								
23	The RomanNumberFormat can be any of the following.								
24	0 is Classic. This is used if no format is specified.								
25	1 is more Concise.								
26	2 is even more Concise.								
27	3 is even more Concise still.								
28	4 is Simplified.								
29	TRUE is Classic								
30	FALSE is Simplified								
31									
32	Formatting								
33	No special formatting is needed.								
34									
35	Note								
36	There is no function to do the opposite calculation of Roman to normal.								

	A	B	C	D	E	F	G	H	I
1	ROUND								
2									
3			Number	Places To Round	Rounded Number				
4			1.47589	0	1	=ROUND(C4,D4)			
5			1.47589	1	1.5	=ROUND(C5,D5)			
6			1.47589	2	1.48	=ROUND(C6,D6)			
7			13643.47589	-1	13640	=ROUND(C7,D7)			
8			13643.47589	-2	13600	=ROUND(C8,D8)			
9			13643.47589	-3	14000	=ROUND(C9,D9)			
10									
11	What Does It Do ?								
12			This function rounds a number to a specified amount of decimal places.						
13			If 0 is used the number is rounded to the nearest whole number.						
14			If a negative amount of rounding is used the figures to the left of the decimal point are rounded.						
15									
16	Syntax								
17			=ROUND(NumberToRound,DecimalPlacesToUse)						
18									
19	Formatting								
20			No special formatting is needed.						

	A	B	C	D	E	F	G	H	I	J
1	ROUNDDOWN									
2										
3			Number	Places To Round	Rounded Down					
4			1.47589	0	1	=ROUNDDOWN(C4,D4)				
5			1.47589	1	1.4	=ROUNDDOWN(C5,D5)				
6			1.47589	2	1.47	=ROUNDDOWN(C6,D6)				
7			13643.476	-1	13640	=ROUNDDOWN(C7,D7)				
8			13643.476	-2	13600	=ROUNDDOWN(C8,D8)				
9			13643.476	-3	13000	=ROUNDDOWN(C9,D9)				
10										
11	What Does It Do ?									
12	This function rounds a number down to a specified amount of decimal places.									
13	If 0 is used the number is rounded down to the nearest whole number.									
14	If a negative amount of rounding is used the figures to the left of the decimal point are rounded.									
15										
16	Syntax									
17	=ROUNDDOWN(NumberToRound,DecimalPlacesToUse)									
18										
19	Formatting									
20	No special formatting is needed.									

	A	B	C	D	E	F	G	H	I	J
1	ROUNDUP									
2										
3			Number	Places To Round	Rounded Up					
4			1.47589	0	2	=ROUNDUP(C4,D4)				
5			1.47589	1	1.5	=ROUNDUP(C5,D5)				
6			1.47589	2	1.48	=ROUNDUP(C6,D6)				
7			13643.476	-1	13650	=ROUNDUP(C7,D7)				
8			13643.476	-2	13700	=ROUNDUP(C8,D8)				
9			13643.476	-3	14000	=ROUNDUP(C9,D9)				
10										
11	What Does It Do ?									
12	This function rounds a number up to a specified amount of decimal places.									
13	If 0 is used the number is rounded up to the nearest whole number.									
14	If a negative amount of rounding is used the figures to the left of the decimal point are rounded.									
15										
16	Syntax									
17	=ROUNDUP(NumberToRound,DecimalPlacesToUse)									
18										
19	Formatting									
20	No special formatting is needed.									

	A	B	C	D	E	F	G	H
1	SECOND							
2								
3			Number	Second				
4			05/Sep/15 08:08:17	17	=SECOND(C4)			
5			12:00:00 PM	0	=SECOND(C5)			
6			0.50	0	=SECOND(C6)			
7			0.51	24	=SECOND(C7)			
8			1.51	24	=SECOND(C8)			
9								
10	What Does It Do?							
11	The function will show the second of the minute based upon a time or a number.							
12	Only the fraction part of the number is used as it is this which relates to time of day.							
13								
14	Syntax							
15	=SECOND(Number)							
16								
17	Formatting							
18	The result will be shown as a normal number between 0 and 59.							
19								
20	Example							
21	The following table was used by a telephone company to calculate the cost of a call.							
22	The telephone company only deals in seconds which are a multiple of 5.							
23	The seconds in a call are rounded up to the nearest multiple of 5 before the bill is calculated.							
24	The Duration of the call is entered.							
25	The =MINUTES() function calculates the total number of minutes.							
26	The =SECOND() function calculates the total number of seconds.							
27	The =CEILING() function rounds the seconds up to the nearest multiple of 5.							
28	The Cost of the call is then calculated.							
29								
30					Cost Per Second :	£0.01		
31								
32			Billed Duration					
33			Duration	Minutes	Seconds	Cost		
34			0:01:08	1	10	£0.70		
35			0:02:03	2	5	£1.25		
36			0:01:47	1	50	£1.10		
37					=CEILING(SECOND(C36),5)			

	A	B	C	D	E	F	G	H	I	J
1	SIGN									
2										
3			Value	Positive or Negative						
4			10	1	=SIGN(C4)					
5			20	1	=SIGN(C5)					
6			0	0	=SIGN(C6)					
7			-10	-1	=SIGN(C7)					
8			-20	-1	=SIGN(C8)					
9										
10	What Does It Do ?									
11	This function tests a value to determine whether it is positive or negative.									
12	If the value is positive the result is 1.									
13	If the value is negative the result is -1.									
14	If the value is zero 0 the result is 0.									
15										
16	Syntax									
17	=SIGN(CellToTest)									
18	The CellToTest can be a cell or a calculation.									
19										
20	Formatting									
21	No special formatting is needed.									

	A	B	C	D	E	F	G	H	I
1	SLN								
2									
3					Cost	£12,000			
4					Salvage	£2,000			
5					Life	4			
6					Straight Line Depreciation	£2,500	=SLN(F3,F4,F5)		
7									
8									
9					Purchase Value Of A New Car	£20,000			
10					Second Hand Value	£8,000			
11					Number Of Years Ownership	6			
12					Annual Straight Line Depreciation	£2,000	=SLN(F9,F10,F11)		
13									
14	What Does It Do ?								
15	This function calculates the Straight Line Depreciation of an item.								
16	(Also known as Fixed Instalment method).								
17	The Straight Line Depreciation is how much the value of an item reduced during a specific								
18	period of time. The result is a uniform depreciation value.								
19									
20	An example would be if you bought a new car for £20,000, then kept it for 6 years.								
21	At the end of your ownership you sell the car for £8,000.								
22	The difference between the original and the trade in price is £20,000 - £8,000 which is £12,000.								
23	Because you owned the car for 6 years, the SLN is calculated as £12,000 / 6 which is £2,000.								
24									
25	Syntax								
26	=SLN(OriginalCost,SellingPrice,LengthOfOwnership)								
27	The LengthOfOwnership can be any time period, days, months or years.								
28	However, the SLN which is calculated will, be for that time, specifying 2 years ownership								
29	as 24 months will give an SLN per month.								
30									
31	Formatting								
32	No special formatting is needed.								

	A	B	C	D	E	F	G	H	I	J
1	SMALL									
2										
3			Values		Lowest Value	100	=SMALL(C4:C8,1)			
4			120		2nd Lowest Value	120	=SMALL(C4:C8,2)			
5			800		3rd Lowest Value	120	=SMALL(C4:C8,3)			
6			100		4th Lowest Value	250	=SMALL(C4:C8,4)			
7			120		5th Lowest Value	800	=SMALL(C4:C8,5)			
8			250							
9										
10	What Does It Do ?									
11	This function examines a list of values and picks the value at a user specified position									
12	in the list.									
13										
14	Syntax									
15	=SMALL(ListOfNumbersToExamine,PositionToPickFrom)									
16										
17	Formatting									
18	No special formatting is needed.									
19										
20	Example									
21	The following table was used to calculate the bottom 3 sales figures between Jan, Feb and Mar.									
22										
23			Sales	Jan	Feb	Mar				
24			North	£5,000	£6,000	£4,500				
25			South	£5,800	£7,000	£3,000				
26			East	£3,500	£2,000	£10,000				
27			West	£12,000	£4,000	£6,000				
28										
29			Lowest Value		£2,000		=SMALL(D24:F27,1)			
30			2nd Lowest Value		£3,000		=SMALL(D24:F27,2)			
31			3rd Lowest Value		£3,500		=SMALL(D24:F27,3)			
32										
33	Note									
34	Another way to find the Highest and Lowest values would have been to use									
35	the =MAX() and =MIN() functions.									
36										
37			Highest		£12,000		=MAX(D24:F27)			
38			Lowest		£2,000		=MIN(D24:F27)			

	A	B	C	D	E	F	G	H	I	J
1	Southern data.									
2	Used by the example for the =INDIRECT() function.									
3										
4			Jan	Feb	Mar	Total				
5		Alan	100	200	300	600				
6		Bob	400	500	600	1500				
7		Carol	700	800	900	2400				
8		Total	1200	1500	1800	4500				

	A	B	C	D	E	F	G	H	I	J	K	
1	STDEV											
2												
3			Values		Values		Values					
4			10		10		10					
5			10		10		11					
6			9		11		9					
7			10		10		12					
8												
9			0.5		0.5		1.2909944					
10			=STDEV(C4:C7)		=STDEV(E4:E7)		=STDEV(G4:G7)					
11												
12	What Does It Do ?											
13	This function calculates the sample population standard deviation of a list of values.											
14	A sample population is used when the list of values represents a sample of a population.											
15												
16	Syntax											
17	=STDEV(Range1,Range2,Range3 through to Range30)											
18												
19	Formatting											
20	No special formatting is needed.											
21												
22	Example											
23	The table below was used by a company interested in buying a new machine											
24	to pack washing powder.											
25	Three machines were short listed and allow to run for a day.											
26	At the end of the day four boxes of soap powder were picked at random from the production											
27	of each machine.											
28	The boxes were weighed and the =STDEV() function used as these boxes only represented											
29	a sample of the complete days production.											
30	The machine with the smallest deviation was the most consistent.											
31												
32			Soap Powder Box Filling Machine Test Results									
33			Test 1	Test 2	Test 3	Test 4	Variance					
34		Machine 1	1.4	1.5	1.6	1.5	0.0816	=STDEV(D34:G34)				
35		Machine 2	1.5	1.5	1.4	1.5	0.0500	=STDEV(D35:G35)				
36		Machine 3	1.5	1.6	1.7	1.8	0.1291	=STDEV(D36:G36)				
37												
38			The smallest deviation is :					0.0500	=MIN(H34:H36)			
39												
40			The machine with the smallest deviation is :					Machine 2				
41			=INDEX(C34:C36,MATCH(MIN(H34:H36),H34:H36,0))									
42												
43	Explanation of formula:											
44			This finds the lowest value.					=MIN(H34:H36)				
45			This finds the position of the lowest value.					=MATCH(MIN(H34:H36),H34:H36,0)				
46			This looks down the Machine column to					=INDEX(C34:C36,MATCH(MIN(H34:H36),H34:H36,0))				
47			find the machine name.									

	A	B	C	D	E	F	G	H	
1	SUBSTITUTE								
2	<hr/>								
3		Original Text	Old Text To Remove	New Text To Insert	Updated Text				
4		ABCDEF	CD	hello	ABhelloEF	=SUBSTITUTE(B4,C4,D4)			
5		ABCDCBCD	CD	hello	ABhelloABhello	=SUBSTITUTE(B5,C5,D5)			
6		Northern Region	Region	Area	Northern Area	=SUBSTITUTE(B6,C6,D6)			
7		Sand and Cement	and	&	S& & Cement	=SUBSTITUTE(B7,C7,D7)			
8	<hr/>								
9		Original Text	Old Text To Remove	New Text To Insert	Instance To Be Replaced	Updated Text			
10		ABCABCABC	ABC	hello	3	ABCABChello			
11		Sand and Cement	and	&	2	Sand & Cement			
12						=SUBSTITUTE(B10,C10,D10,E10)			
13						=SUBSTITUTE(B11,C11,D11,E11)			
14	<hr/>								
15	What Does It Do ?								
16	This function replaces a specified piece of text with a different piece of text.								
17	It can either replace all occurrences of the text, or a specific instance.								
18	The function is case sensitive.								
19	<hr/>								
20	Syntax								
21	=SUBSTITUTE(OriginalText,TextToRemove,TextToInsert,InstanceToUse)								
22	The InstanceToUse is optional, if it is omitted all instances will be substituted.								
23	<hr/>								
24	Formatting								
25	No special formatting is needed.								
26	<hr/>								
27	Note								
28	To cope with upper or lower case in the substitution you can use other text functions								
29	such as =UPPER(), =LOWER() or =PROPER() to ensure that the substitution will take place.								
30	<hr/>								
31	Table 1 shows how differing text cases alter the result of the substitution.								
32	<hr/>								
33	Table 1								
34		Original Text	Old Text To Remove	New Text To Insert	Updated Text				
35		Northern Region	Region	Area	Northern Area				
36		Northern region	Region	Area	Northern region				
37		Northern Region	region	Area	Northern Region				
38		Northern Region	Region	area	Northern area				
39		Northern Region	region	area	Northern Region				
40						=SUBSTITUTE(B39,C39,D39)			
41	<hr/>								
42	Table 2 shows how the =PROPER() function has been used to take account of the mixed cases.								
43	<hr/>								
44	Table 2								
45		Original Text	Old Text To Remove	New Text To Insert	Updated Text				
46		Northern Region	Region	Area	Northern Area				
47		Northern region	Region	Area	Northern Area				
48		Northern Region	region	Area	Northern Area				
49		Northern Region	Region	area	Northern Area				
50		Northern Region	region	area	Northern Area				

	A	B	C	D	E	F	G	H	
51			=SUBSTITUTE(PROPER(B50),PROPER(C50),PROPER(D50))						

	A	B	C	D	E	F	G	H	I	J	
1	SUM										
2											
3			Horizontal								
4			100	200	300	600	=SUM(C4:E4)				
5											
6			Vertical								
7			100								
8			200								
9			300								
10			600	=SUM(C7:C9)							
11											
12			Single Cells								
13			100		300	600	=SUM(C13,D14,E13)				
14				200							
15											
16			Multiple Ranges								
17			100		400						
18			200		500						
19			3000		600						
20					4800	=SUM(C17:C19,E17:E19)					
21											
22			Functions								
23			100		400						
24			200		500						
25			300		600						
26					800	=SUM(AVERAGE(C23:C25),MAX(E23:E25))					
27											
28	What Does It Do ?										
29	This function creates a total from a list of numbers.										
30	It can be used either horizontally or vertically.										
31	The numbers can be in single cells, ranges are from other functions.										
32											
33	Syntax										
34	=SUM(Range1,Range2,Range3... through to Range30).										
35											
36	Formatting										
37	No special formatting is needed.										
38											
39											
40											
41	Note										
42	Many people use the =SUM() function incorrectly.										
43											
44	This example shows how the SUM has been combined with plus + symbols.										
45	The formula is actually doing more work than needed.										
46	It should have been entered as either =C48+C49+C50 or =SUM(C48:C50).										
47											
48			100								
49			200								
50			300								
51			600	=SUM(C48+C49+C50)			<i>Wrong!</i>				
52				=SUM(C48:C50)			Correct				
53				=C48+C49+C50			Correct				

	A	B	C	D	E	F	G	H	I	J	
1	SUM (Running Total)										
2											
3											
4	Using =SUM() For A Running Total										
5											
6			Month	Sales	Running Total						
7			Jan	10	10	=SUM(\$D\$7:D7)					
8			Feb	50	60	=SUM(\$D\$7:D8)					
9			Mar	30	90	=SUM(\$D\$7:D9)					
10			Apr	20	110	=SUM(\$D\$7:D10)					
11			May		110	=SUM(\$D\$7:D11)					
12			Jun		110	=SUM(\$D\$7:D12)					
13			Jul		110	=SUM(\$D\$7:D13)					
14			Aug		110	=SUM(\$D\$7:D14)					
15			Sep		110	=SUM(\$D\$7:D15)					
16			Oct		110	=SUM(\$D\$7:D16)					
17			Nov		110	=SUM(\$D\$7:D17)					
18			Dec		110	=SUM(\$D\$7:D18)					
19											
20	Type the formula =SUM(\$D\$7:D7) in cell E7 and then copy down the table.										
21	It works because the first reference uses dollar symbols \$ to keep \$D\$7 static										
22	as the formula is copied down. Each occurrence of the =SUM() then adds all										
23	the numbers from the first cell down.										
24											
25	The function can be tidied up to show 0 zero when there is no adjacent value										
26	by using the =IF() function.										
27											
28			Month	Sales	Running Total						
29			Jan	10	10	=SUM(IF(D7,\$D\$7:D7,0))					
30			Feb	50	60	=SUM(IF(D8,\$D\$7:D8,0))					
31			Mar	30	90	=SUM(IF(D9,\$D\$7:D9,0))					
32			Apr	20	110	=SUM(IF(D10,\$D\$7:D10,0))					
33			May		0	=SUM(IF(D11,\$D\$7:D11,0))					
34			Jun		0	=SUM(IF(D12,\$D\$7:D12,0))					
35			Jul		0	The =SUM() only takes place when there is data in column D.					
36			Aug		0						
37			Sep		0	Otherwise the value 0 zero is entered.					
38			Oct		0						
39			Nov		0						
40			Dec		0						

	A	B	C	D	E	F	G	H	I	J
1	SUM and the =OFFSET function									
2										
3			Sometimes it is necessary to base a calculation on a set of cells in different locations.							
4			An example would be when a total is required from certain months of the year, such as							
5			the last 3 months in relation to the current date.							
6										
7			One solution would be to retype the calculation each time new data is entered, but this							
8			would be time consuming and open to human error.							
9										
10			A better way is to indicate the start and end point of the range to be calculated by							
11			using the =OFFSET() function.							
12										
13			The =OFFSET() picks out a cell a certain number of cells away from another cell.							
14			By giving the =OFFSET() the address of the first cell in the range which needs to							
15			be totalled, we can then indicate how far away the end cell should be and the =OFFSET()							
16			will give us the address of cell which will be the end of the range to be totalled.							
17										
18			The =OFFSET() needs to know three things;							
19			1. A cell address to use as the fixed point from where it should base the offset.							
20			2. How many rows it should look up or down from the starting point.							
21			3. How many columns it should look left or right from the starting point.							
22										
23			Total		Jan	Feb	Mar	Apr	May	
24			10		10	400	500	600	700	
25			=SUM(E24:OFFSET(E24,0,0))							
26			This example uses E24 as the starting point and offsets no rows or columns which							
27			results in the range being summed as E24:E24.							
28										
29			410		10	400	500	600	700	
30			=SUM(E29:OFFSET(E29,0,1))							
31			This example uses E29 as the starting point and offsets 1 col to pick out							
32			cell F29 resulting in a the range E29:F29 being summed.							
33										
34			910		10	400	500	600	700	
35			=SUM(E34:OFFSET(E34,0,2))							
36			This example uses E34 as the starting point and offsets 2 cols to pick out							
37			cell G34 resulting in a the range E34:G34 being summed.							
38										
39	Using =OFFSET() Twice In A Formula									
40										
41			The following examples use =OFFSET() to pick both the start and end of the range							
42			which needs to be totalled.							
43										
44			Total		Jan	Feb	Mar	Apr	May	
45			400		10	400	500	600	700	
46			=SUM(OFFSET(E45,0,1):OFFSET(E45,0,1))							
47			The cell E45 has been used as the starting point for both offsets and each has							
48			been offset by just 1 column. The result is that just cell F45 is used as the							
49			range F45:F45 for the sum function to calculate.							
50										
51			900		10	400	500	600	700	
52			=SUM(OFFSET(E51,0,1):OFFSET(E51,0,2))							
53			The cell E51 has been used as the starting point of both offsets, the first offset is							

	A	B	C	D	E	F	G	H	I	J
54			offset by 1 column, the second by 2 columns. The result is the range F51:G51 which							
55			is then totalled.							
56										
57			1500		10	400	500	600	700	
58			=SUM(OFFSET(E57,0,1):OFFSET(E57,0,3))							
59			The cell E57 has been used as the starting point for both offsets, the first offset is							
60			offset by 1 column, the second by 3 columns. The result is the range F57:H57 which							
61			is then totalled.							
62										
63										
64			Example							
65										
66			The following table shows five months of data.							
67			To calculate the total of a specific group of months the =OFFSET() function has been used.							
68			The Start and End dates entered in cells F71 and F72 are used as the offset to produce							
69			a range which can be totalled.							
70										
71			Type in the Start month.		Feb-98					
72			Type in the End month.		Mar-98					
73										
74			Total		Jan-98	Feb-98	Mar-98	Apr-98	May-98	
75			900		10	400	500	600	700	
76										
77			1020		15	20	1000	2000	3000	
78										
79			13		5	3	10	800	900	
80			=SUM(OFFSET(D79,0,MONTH(F71)):OFFSET(D79,0,MONTH(F72)))							
81										
82			Explanation							
83			The following formula represent a breakdown of what the =OFFSET function does.							
84			The formula displayed below are only dummies, but they will update as you enter							
85			dates into cells F71 and F72.							
86										
87			Formula 1		=SUM(OFFSET(D79,0,MONTH(F71)) : OFFSET(D79,0,MONTH(F72)))					
88					This is the actual formula entered by the user.					
89										
90			Formula 2		=SUM(OFFSET(D79,0,MONTH(2)) : OFFSET(D79,0,MONTH(3)))					
91					This shows how the =MONTH function calculates the month number.					
92					In this example the values of the months are 2 and 3 for Feb and Mar.					
93					These values are the 'offsets' relative to cell D79.					
94										
95			Formula 3		=SUM(OFFSET(D79,0,2) : OFFSET(D79,0,3))					
96					This shows where the month numbers are used in the =OFFSET function.					
97										
98			Formula 4		=SUM(F79:G79)					
99					This shows how the =OFFSET eventually equates to cell addresses					
100					to be used as a range for the =SUM function.					

	A	B	C	D	E	F	G	H	I	J	
1	SUMIF										
2											
3			Item	Date	Cost						
4			Brakes	1-Jan-98	80						
5			Tyres	10-May-98	25						
6			Brakes	1-Feb-98	80						
7			Service	1-Mar-98	150						
8			Service	5-Jan-98	300						
9			Window	1-Jun-98	50						
10			Tyres	1-Apr-98	200						
11			Tyres	1-Mar-98	100						
12			Clutch	1-May-98	250						
13											
14	Total cost of all Brakes bought.					160	=SUMIF(C4:C12,"Brakes",E4:E12)				
15	Total cost of all Tyres bought.					325	=SUMIF(C4:C12,"Tyres",E4:E12)				
16	Total of items costing £100 or above.					1000	=SUMIF(E4:E12,">=100")				
17											
18	Total of item typed in following cell.				service	450	=SUMIF(C4:C12,E18,E4:E12)				
19											
20											
21	What Does It Do ?										
22	This function adds the value of items which match criteria set by the user.										
23											
24	Syntax										
25	=SUMIF(RangeOfThingsToBeExamined,CriteriaToBeMatched,RangeOfValuesToTotal)										
26											
27	=SUMIF(C4:C12,"Brakes",E4:E12)					This examines the names of products in C4:C12.					
28	It then identifies the entries for Brakes.										
29	It then totals the respective figures in E4:E12										
30											
31	=SUMIF(E4:E12,">=100")					This examines the values in E4:E12.					
32	If the value is >=100 the value is added to the total.										
33											
34	Formatting										
35	No special formatting is needed.										

	A	B	C	D	E	F	G	H	I
1	SUMPRODUCT								
2									
3			Item	Sold	price				
4			Tyres	5	100				
5			Filters	2	10				
6			Bulbs	3	2				
7									
8			Total Sales Value :	526	=SUMPRODUCT(D4:D6,E4:E6)				
9									
10	What Does It Do ?								
11	This function uses at least two columns of values.								
12	The values in the first column are multiplied with the corresponding value in the second column.								
13	The total of all the values is the result of the calculation.								
14									
15	Syntax								
16	=SUMPRODUCT(Range1, Range, Range3 through to Range30)								
17									
18	Formatting								
19	No special formatting is needed.								
20									
21	Example								
22	The following table was used by a drinks merchant to keep track of stock.								
23	The merchant needed to know the total purchase value of the stock, and the potential								
24	value of the stock when it is sold, taking into account the markup percentage.								
25									
26	The =SUMPRODUCT() function is used to multiply the Cases In Stock with the Case Price to								
27	calculate what the merchant spent in buying the stock.								
28									
29	The =SUMPRODUCT() function is used to multiply the Cases In Stock with								
30	the Bottles In Case and the Bottle Setting Price, to calculate the potential value of the								
31	stock if it is all sold.								
32									
33									
34	Product	Cases In Stock	Case Price	Bottles In Case	Bottle Cost	Markup	Bottle Selling Price		
35	Red Wine	10	£120	10	£12.00	25%	£15.00		
36	White Wine	8	£130	10	£13.00	25%	£16.25		
37	Champagne	5	£200	6	£33.33	80%	£60.00		
38	Beer	50	£24	12	£2.00	20%	£2.40		
39	Lager	100	£30	12	£2.50	25%	£3.13		
40					=D39/E39		=F39+F39*G39		
41									
42									
43	Total Value Of Stock :				£7,440	=SUMPRODUCT(C35:C39,D35:D39)			
44	Total Selling Price Of Stock :				£9,790	=SUMPRODUCT(C35:C39,E35:E39,H35:H39)			
45									
46			Profit :	£2,350	=E44-E43				

	A	B	C	D	E	F	G	H	I	
1	SYD									
2										
3	Purchase Value Of A New Car					£20,000				
4	Second Hand Value					£8,000				
5	Number Of Years Ownership					6				
6										
7	Deprecation in year 1					£3,429	=SYD(F3,F4,F5,1)			
8	Deprecation in year 2					£2,857	=SYD(F3,F4,F5,2)			
9	Deprecation in year 3					£2,286	=SYD(F3,F4,F5,3)			
10	Deprecation in year 4					£1,714	=SYD(F3,F4,F5,4)			
11	Deprecation in year 5					£1,143	=SYD(F3,F4,F5,5)			
12	Deprecation in year 6					£571	=SYD(F3,F4,F5,6)			
13										
14	Total Depreciation :					£12,000	=SUM(F7:F12)			
15										
16	What Does It Do ?									
17	This function calculates the depreciation of an item throughout its life, using the sum of the									
18	years digits.									
19	The depreciation is greatest in the earlier part of the items life.									
20										
21	What is the Sum Of The Years Digits ?									
22	The sum of the years digits adds together the each of the years of the life.									
23	A life of 3 years has a sum of 1+2+3 equalling 6.									
24	Each of the years is then calculated as a percentage of the sum of the years.									
25	Year 3 is 50% of 6, year 2 is 33% of 6, year 1 is 17% 6.									
26	The total depreciation of the item is then allocated on the basis of these percentages.									
27	A depreciation of £9000 is allocated as 50% being £4500, 33% being £3000, 17% being £1500.									
28										
29						£9,000				
30		1	17%		£1,500					
31		2	33%		£3,000					
32		3	50%		£4,500					
33										
34	As the greater part of the depreciation is allocated to the earliest years the values are									
35	inverted, year 1 is \$4500, year 2 is £3000 and year 1 is £1500.									
36										
37	Example 1									
38										
39	Purchase Price Of A Car :					£10,000				
40	Salvage Value :					£1,000				
41	Expected Life in Years :					3				
42							As % Of Total Depreciation			
43	Deprecation in Year 1 :					£4,500	====>	0.5		
44	Deprecation in Year 2 :					£3,000	====>	0.3333333		
45	Deprecation in Year 3 :					£1,500	====>	0.1666667		
46							=SYD(E39,E40,E41,3)			
47										
48	1. Add together the digits of the Life to get the SumOfTheYearsDigits, 1+2+3=6.									
49	2. Subtract the Salvage from the Purchase Price to get Total Deprecation, £10000-£1000=£9000.									
50	3. Divide the Total Deprecation by the SumOfTheYearsDigits, £9000/6=£1500.									
51	4. Invert the year digits, 1,2,3 becomes 3,2,1.									
52	5. Multiply 3,2,1 by £1500 to get £4500, £3000, £1500, these values are the depreciation									
53	values for each of the three years in the life of the item.									
54										

	A	B	C	D	E	F	G	H	I
55	Example 2								
56	The same example using 4 years.								
57									
58	Purchase Price Of A Car :			£10,000					
59	Salvage Value :			£1,000					
60	Expected Life in Years :			4					
61								As % Of Total Depreciation	
62	Depreciation in Year 1 :			£3,600				0.4	
63	Depreciation in Year 2 :			£2,700				0.3	
64	Depreciation in Year 3 :			£1,800				0.2	
65	Depreciation in Year 4 :			£900				0.1	
66	Total Depreciation :			£9,000				100%	
67									
68	Example 3								
69	This example will adjust itself to accommodate any number of years between 1 and 10.								
70									
71	Purchase Price Of A Car :			£10,000					
72	Salvage Value :			£1,000					
73	Expected Life in Years (1 to 10) :			7					
74								As % Of Total Depreciation	
75	Year		1	£2,250				25%	
76	Year		2	£1,929				21%	
77	Year		3	£1,607				18%	
78	Year		4	£1,286				14%	
79	Year		5	£964				11%	
80	Year		6	£643				7%	
81	Year		7	£321				4%	
82	Year								
83	Year								
84	Year								
85				£9,000				100%	
86									
87	Syntax								
88	=SYD(OriginalCost,SalvageValue,Life,PeriodToCalculate)								
89									
90	Formatting								
91	No special formatting is needed.								

	A	B	C	D	E	F	G	H	I	J
1	T									
2	<hr/>									
3				Cell To Test	Result					
4				Hello	Hello	=T(D4)				
5				10		=T(D5)				
6				1-Jan-98		=T(D6)				
7						=T(D7)				
8										
9	What Does It Do ?									
10	This function examines an entry to determine whether it is text or not.									
11	If the value is text, then the text is the result of the function									
12	If the value is not text, the result is a blank.									
13	The function is not specifically needed by Excel, but is included for compatibility with									
14	other spreadsheet programs.									
15										
16	Syntax									
17	=T(CellToTest)									
18										
19	Formatting									
20	No special formatting is needed.									

	A	B	C	D	E	F	G	H	I	J
1	TEXT									
2										
3			Original Number	Converted To Text						
4			10	10.00	=TEXT(C4,"0.00")					
5			10	£10.00	=TEXT(C5,"£0.00")					
6			10	10	=TEXT(C6,"0")					
7			10	£10	=TEXT(C7,"£0")					
8			10.25	10.3	=TEXT(C8,"0.0")					
9			10.25	£10.3	=TEXT(C9,"£0.0")					
10										
11	What Does It Do ?									
12	This function converts a number to a piece of text.									
13	The formatting for the text needs to be specified in the function.									
14										
15	Syntax									
16	=TEXT(NumberToConvert,FormatForConversion)									
17										
18	Formatting									
19	No special formatting is required.									

	A	B	C	D	E	F	G	H	I
1	TIME								
2									
3			Hour	Minute	Second	Time			
4			14	30	59	14:30:59	=TIME(C4,D4,E4)		
5			14	30	59	2:30:59 PM	=TIME(C5,D5,E5)		
6			14	30	59	0.60485	=TIME(C6,D6,E6)		
7									
8	What Does It Do?								
9	This function will convert three separate numbers to an actual time.								
10									
11	Syntax								
12	=TIME(Hour,Minute,Second)								
13									
14	Formatting								
15	The result will be shown as a time which can be formatted either as 12 or 24 hour style.								
16	If a normal number format is applied a decimal fraction is shown which represents the								
17	time as a fraction of the day.								

	A	B	C	D	E	F	G	H
1	TIMEVALUE							
2								
3			Text	Time				
4			14:30:59	0.604849537	=TIMEVALUE(C4)			
5			14:30:59	14:30:59	=TIMEVALUE(C5)			
6			14:30:59	2:30:59 PM	=TIMEVALUE(C6)			
7								
8	What Does It Do?							
9	This function will show an actual time based on a piece of text which looks							
10	like a time. It is useful when data is imported from other applications, such as							
11	from mainframe computers, which convert all values to text.							
12								
13	Syntax							
14	=TIMEVALUE(Text)							
15								
16	Formatting							
17	The result will be shown as a number representing the time a fraction of the day.							
18	Formatting can be applied for either the 12 or 24 hour clock system.							

	A	B	C	D	E	F	G	H
1	TODAY							
2	<hr/>							
3			Today Is					
4			5-Sep-15	=TODAY()				
5	<hr/>							
6	What Does It Do?							
7	Use this to show the current date.							
8	<hr/>							
9	Syntax							
10	=TODAY()							
11	<hr/>							
12	Formatting							
13	The result will normally be displayed using the DD-MMM-YY format.							
14	<hr/>							
15	Example							
16	The following example shows how the Today function is used to calculate the number							
17	of days since a particular day.							
18								
19			Date	Days Since				
20			1-Jan-97	09/03/18	=TODAY()-C20			
21			10-Aug-97	01/25/18	=TODAY()-C21			
22	<hr/>							
23	<hr/>							
24	Note that the result is actually the number of days before todays date. To calculate							
25	a result which includes the current date an extra 1 will need to be added.							
26	<hr/>							
27			Date	Days Since				
28			1-Jan-97	6822	=TODAY()-C28+1			
29			10-Aug-97	6601	=TODAY()-C29+1			
30	<hr/>							
31	<hr/>							
32	Example							
33	The following example shows the number of days from today until the year 2000.							
34	<hr/>							
35			Year 2000	Days Until				
36			01-Jan-2000	04/26/84	=C36-TODAY()			

	A	B	C	D	E	F	G	H	I	J	
1	TRANSPOSE										
2											
3				Jan	Feb						
4			Alan	10	30						
5			Bob	40	50						
6			Carol	70	80						
7			Total	120	160						
8											
9				Alan	Bob	Carol	Total				
10				Jan	40	70	120				
11				Feb	50	80	160				
12											
13			{=TRANSPOSE(C3:E7)}								
14											
15											
16			As an array formula in all these cells								
17											
18	What Does It Do ?										
19	This function copies data from a range, and places in it in a new range, turning it so										
20	that the data originally in columns is now in rows, and the data originally in rows										
21	is in columns.										
22	The transpose range must be the same size as the original range.										
23	The function needs to be entered as an array formula.										
24	To enter an array formula you must first highlight all the cells where the formula is required.										
25	Next type the formula, such as =TRANSPOSE(A1:A5).										
26	Finally press Ctrl+Shift+Enter to confirm it.										
27	If changes need to be made to the formula, the entire array has to be highlighted, the edits										
28	can then be made and the Ctrl+Shift+Enter used to confirm it.										
29											
30	Syntax										
31	=TRANSPOSE(Range)										
32											
33	Formatting										
34	No special formatting is needed.										

	A	B	C	D	E	F	G	H	I	J
1	TREND		WHAT IS CONST b ?							
2										
3	Historical Data			Predicted Values						
4	Month	Sales		Month	Sales					
5	1	£1,000		7	£4,940	{=TREND(C8:C13,B8:B13,E8:E13)}				
6	2	£2,000		8	£5,551	{=TREND(C5:C10,B5:B10,E5:E10)}				
7	3	£2,500		9	£6,163	{=TREND(C5:C10,B5:B10,E5:E10)}				
8	4	£3,500		10	£6,774	{=TREND(C5:C10,B5:B10,E5:E10)}				
9	5	£3,800		11	£7,386	{=TREND(C5:C10,B5:B10,E5:E10)}				
10	6	£4,000		12	£7,997	{=TREND(C5:C10,B5:B10,E5:E10)}				
11										
12	What Does It Do ?									
13	This function predicts values based upon three sets of related values.									
14	The prediction is based upon the Linear Trend of the original values.									
15	The function is an array function and must be entered using Ctrl+Shift+Enter.									
16										
17	Syntax									
18	=TREND(KnownYs,KnownXs,RequiredXs,Constant)									
19	The KnownYs is the range of values, such as Sales Figures.									
20	The KnownXs is the intervals used when collecting the data, such as Months.									
21	The RequiredXs is the range for which you want to make the prediction, such as Months.									
22										
23										
24	Formatting									
25	No special formatting is needed.									
26										
27	Example									
28	The following tables were used by a company to predict when they would start to									
29	make a profit.									
30	Their bank manager had told the company that unless they could show a profit by the									
31	end of the next year, the bank would no longer provide an overdraft facility.									
32	To prove to the bank that, based upon the past years performance, the company would									
33	start to make a profit at the end of the next year, the =TREND() function was used.									
34	The historical data for the past year was entered, months 1 to 12.									
35	The months to predict were entered, 13 to 24.									
36	The =TREND() function shows that it will be month 22 before the company make a profit.									
37										
38										
39	Historical Data			Predicted Values						
40	Month	Profit		Month	Profit					
41	1	-£5,000		13	-£2,226	{=TREND(C41:C52,B41:B52,E41:E52)}				
42	2	-£4,800		14	-£1,968	The				
43	3	-£4,600		15	-£1,709	same				
44	4	-£4,750		16	-£1,451	function				
45	5	-£4,800		17	-£1,193	used				
46	6	-£4,500		18	-£935	in				
47	7	-£4,000		19	-£676	all				
48	8	-£3,800		20	-£418	cells				
49	9	-£3,300		21	-£160	as				
50	10	-£2,000		22	£98	an				
51	11	-£2,500		23	£356	array				
52	12	-£2,800		24	£615	formula				
53										
54	How To Enter An Array Formula									

	A	B	C	D	E	F	G	H	I	J	
55		Select all the cells where the array is required, such as F41 to F52.									
56		Type the formula such as =TREND(C41:C52,B41:B52,E41:E52), but do not press Enter.									
57		Hold the Ctrl+Shift keys down.									
58		Press Enter to enter the formula as an array.									

	A	B	C	D	E	F	G	H	I
1	TRIM								
2	<hr/>								
3			Original Text	Trimmed Text					
4			ABCD	ABCD	=TRIM(C4)				
5			A B C D	A B C D	=TRIM(C5)				
6			Alan Jones	Alan Jones	=TRIM(C6)				
7			ABCD	ABCD	=TRIM(C7)				
8	<hr/>								
9	What Does It Do ?								
10	This function removes unwanted spaces from a piece of text.								
11	The spaces before and after the text will be removed completely.								
12	Multiple spaces within the text will be trimmed to a single space								
13	<hr/>								
14	Syntax								
15	=TRIM(TextToTrim)								
16	<hr/>								
17	Formatting								
18	No special formatting is needed.								

	A	B	C	D	E	F	G	H	I	J
1	TRUNC									
2										
3			Number	Precision For Truncation	Truncated Number					
4			1.47589	0	1	=TRUNC(C4,D4)				
5			1.47589	1	1.4	=TRUNC(C5,D5)				
6			1.47589	2	1.47	=TRUNC(C6,D6)				
7			-1.47589	1	-1.4	=TRUNC(C7,D7)				
8			-1.47589	2	-1.47	=TRUNC(C8,D8)				
9			13643.476	-1	13640	=TRUNC(C9,D9)				
10			13643.476	-2	13600	=TRUNC(C10,D10)				
11			13643.476	-3	13000	=TRUNC(C11,D11)				
12										
13	What Does It Do ?									
14	This function removes the decimal part of a number, it does not actually round the number.									
15										
16	Syntax									
17	=TRUNC(NumberToTuncate,Precision)									
18										
19	Formatting									
20	No special formatting is needed.									

	A	B	C	D	E	F	G	H
1	UPPER							
2	<hr/>							
3			Original Text	Upper Case				
4			alan jones	ALAN JONES	=UPPER(C4)			
5			bob smith	BOB SMITH	=UPPER(C5)			
6			carOl wiLLiamS	CAROL WILLIAMS	=UPPER(C6)			
7			cardiff	CARDIFF	=UPPER(C7)			
8			abc123	ABC123	=UPPER(C8)			
9	<hr/>							
10	What Does It Do ?							
11	This function converts all characters in a piece of text to upper case.							
12	<hr/>							
13	Syntax							
14	=UPPER(TextToConvert)							
15	<hr/>							
16	Formatting							
17	No special formatting is needed.							
18	<hr/>							
19	Example							
20	See the example for FREQUENCY.							

	A	B	C	D	E	F	G	H
1	VALUE							
2								
3			Text Containing A Number	Value				
4			Annual turnover was £5000	Err:502	=VALUE(MID(C4,SEARCH("£",C4),99))			
5								
6			There was a 2% increase in sales.	#VALUE!				
7			There was a 50% increase in sales.	#VALUE!				
8			A 100% increase was achieved.	#VALUE!				
9			Only a 2% increase in sales.	#VALUE!				
10			Approx 50% increase in sales.	#VALUE!				
11			There was a 100% increase in sales.	#VALUE!	* See explanation below.			
12			=VALUE(MID(SUBSTITUTE(C11," "," "),SEARCH("???%",SUBSTITUTE(C11," "," ")),4))					
13								
14			The winning time was 1:30 seconds.	#VALUE!	=VALUE(MID(C14,SEARCH("?:??",C14),5))			
15			The winning time was 1:30 seconds.	#VALUE!	=VALUE(MID(C15,SEARCH("?:??",C15),5))			
16			The winning time was 10:30 seconds.	#VALUE!	=VALUE(MID(C16,SEARCH("?:??",C16),5))			
17			The winning time was 0:30 seconds.	#VALUE!	=VALUE(MID(C17,SEARCH("?:??",C17),5))			
18								
19	What Does It Do ?							
20	This function converts a piece of text which resembles a number into an actual value.							
21	If the number in the middle of a long piece of text it will have to be extracted using other							
22	text functions such as =SEARCH(), =MID(), =FIND(), =SUBSTITUTE, =LEFT() or =RIGHT().							
23								
24	Syntax							
25	=VALUE(TextToConvert)							
26								
27	Formatting							
28	No special formatting is needed.							
29	The result will be shown as a value, based upon the original text.							
30	If the £ sign is included in the text it will be ignored.							
31	If the % sign is included in the text, the result will be a decimal fraction which can then							
32	be formatted as a percentage.							
33	If the original text format appears as a time hh:mm the result will be a time.							
34	The same will be true for other recognised formats.							
35								
36								
37	Explanation of formula shown above.							
38	To extract the values from the following text is complicated!							
39	The actual percentage value is of variable length, it can be either one, two or three digits long.							
40	The only way to identify the value is the fact it always ends with the % sign.							
41	There is no way to identify the beginning of the value, other than it is preceded by a space.							
42	The main problem is calculating the length of the value to extract.							
43	If the extraction assumes the maximum length of three digits and the % sign, errors will occur							
44	when the percentage is only one digit long, as alphabetic characters will be included.							
45	To get around the problem the =SUBSTITUTE() function was used to increase the size of the							
46	spaces in the text.							
47	Now when the extraction takes place any unnecessary characters will be spaces which are							
48	ignored by the =VALUE() function.							
49								
50			There was a 2% increase in sales.	#VALUE!				
51			There was a 50% increase in sales.	#VALUE!				
52			There was a 100% increase in sales.	#VALUE!				
53								
54			=VALUE(MID(SUBSTITUTE(C52," "," "),SEARCH("???%",SUBSTITUTE(C52," "," ")),4))					

	A	B	C	D	E	F	G	H	I	J	
1	VAR										
2											
3			Values		Values		Values				
4			10		10		10				
5			10		10		11				
6			9		11		9				
7			10		10		12				
8											
9			0.25		0.25		1.666667				
10			=VAR(C4:C7)		=VAR(E4:E7)		=VAR(G4:G7)				
11											
12	What Does It Do ?										
13	This function calculates the sample population variance of a list of values.										
14	A sample population is used when the list of values represents a sample of a population.										
15											
16	Syntax										
17	=VAR(Range1,Range2,Range3 through to Range30)										
18											
19	Formatting										
20	No special formatting is needed.										
21											
22	Example										
23	The table below was used by a company interested in buying a new machine										
24	to pack washing powder.										
25	Three machines were short listed and allow to run for a day.										
26	At the end of the day four boxes of soap powder were picked at random from the production										
27	of each machine.										
28	The boxes were weighed and the =VAR() function used as these boxes only represented										
29	a sample of the complete days production.										
30	The machine with the smallest variance was the most consistent.										
31											
32			Soap Powder Box Filling Machine Test Results								
33			Test 1	Test 2	Test 3	Test 4	Variance				
34		Machine 1	1.4	1.5	1.6	1.5	0.0067	=VAR(D34:G34)			
35		Machine 2	1.5	1.5	1.4	1.5	0.0025	=VAR(D35:G35)			
36		Machine 3	1.5	1.6	1.7	1.8	0.0167	=VAR(D36:G36)			
37											
38			The smallest variance is :				0.0025	=MIN(H34:H36)			
39											
40			The machine with the smallest variance is :				Machine 2				
41			=INDEX(C34:C36,MATCH(MIN(H34:H36),H34:H36,0))								
42											
43	Explanation of formula:										
44			This finds the lowest value.		=MIN(H34:H36)						
45			This finds the position of the lowest value.		=MATCH(MIN(H34:H36),H34:H36,0)						
46			This looks down the Machine column to		=INDEX(C34:C36,MATCH(MIN(H34:H36),H34:H36,0))						
47			find the machine name.								

1	VARP										
2	<hr/>										
3			Values		Values		Values				
4			10		10		10				
5			10		10		11				
6			9		11		9				
7			10		10		12				
8											
9			0.1875		0.1875		1.25				
10			=VARP(C4:C7)		=VARP(E4:E7)		=VARP(G4:G7)				
11											
12	What Does It Do ?										
13	This function calculates the variance of a list of values.										
14	The variance is calculated on the basis that the values represent the entire population.										
15											
16	Syntax										
17	=VARP(Range1,Range2,Range3 through to Range30)										
18											
19	Formatting										
20	No special formatting is needed.										
21											
22	Example										
23	The table below was used by a company interested in buying a new machine										
24	to pack washing powder.										
25	A trial run a just four boxes per machine were produced.										
26	The boxes were weighed and the =VARP() function used as these boxes										
27	represented the entire test run.										
28	The machine with the smallest variance was the most consistent.										
29											
30			Soap Powder Box Filling Machine Test Results								
31			Test 1	Test 2	Test 3	Test 4	Variance				
32		Machine 1	1.4	1.5	1.6	1.5	0.0050	=VARP(D32:G32)			
33		Machine 2	1.5	1.5	1.4	1.5	0.0019	=VARP(D33:G33)			
34		Machine 3	1.5	1.6	1.7	1.8	0.0125	=VARP(D34:G34)			
35											
36							The smallest variance is :	0.0019	=MIN(H32:H34)		
37											
38							The machine with the smallest variance is :	Machine 2			
39								=INDEX(C32:C34,MATCH(MIN(H32:H34),H32:H34,0))			
40											
41	Explanation of formula:										
42			This finds the lowest value.						=(MIN(H32:H34)		
43			This finds the position of the lowest value.						=MATCH(MIN(H32:H34),H32:H34,0)		
44			This looks down the Machine column to						=INDEX(C32:C34,MATCH(MIN(H32:H34),H32:H34,0))		
45			find the machine name.								

	A	B	C	D	E	F	G	H	I	J	
1	VLOOKUP										
2											
3											
4	<i>The column numbers are not needed. they are part of the illustration.</i>										
5			<i>col 1</i>	<i>col 2</i>	<i>col 3</i>	<i>col 4</i>	<i>col 5</i>	<i>col 6</i>			
6			Jan	10	20	30	40	50			
7			Feb	80	90	100	110	120			
8			Mar	97	69	45	51	77			
9											
10											
11			Type a month to look for :				Feb				
12			Which column needs to be picked out :				4				
13											
14					The result is :		100				
15							<code>=VLOOKUP(G11,C6:H8,G12,FALSE)</code>				
16											
17	What Does It Do ?										
18	This function scans down the row headings at the side of a table to find a specified item.										
19	When the item is found, it then scans across to pick a cell entry.										
20											
21	Syntax										
22	<code>=VLOOKUP(ItemToFind,RangeToLookIn,ColumnToPickFrom,SortedOrUnsorted)</code>										
23	The ItemToFind is a single item specified by the user.										
24	The RangeToLookIn is the range of data with the row headings at the left hand side.										
25	The ColumnToPickFrom is how far across the table the function should look to pick from.										
26	The Sorted/Unsorted is whether the column headings are sorted. TRUE for yes, FALSE for no.										
27											
28	Formatting										
29	No special formatting is needed.										
30											
31	Example 1										
32	This table is used to find a value based on a specified name and month.										
33	The =VLOOKUP() is used to scan down to find the name.										
34	The problem arises when we need to scan across to find the month column.										
35	To solve the problem the =MATCH() function is used.										
36											
37	The =MATCH() looks through the list of names to find the month we require. It then calculates										
38	the position of the month in the list. Unfortunately, because the list of months is not as wide										
39	as the lookup range, the =MATCH() number is 1 less than we require, so an extra 1 is										
40	added to compensate.										
41											
42	The =VLOOKUP() now uses this =MATCH() number to look across the columns and										
43	picks out the correct cell entry.										
44											
45	The =VLOOKUP() uses FALSE at the end of the function to indicate to Excel that the										
46	row headings are not sorted.										
47											
48											
49			Jan	Feb	Mar						
50		Bob	10	80	97						
51		Eric	20	90	69						
52		Alan	30	100	45						
53		Carol	40	110	51						
54		David	50	120	77						

	A	B	C	D	E	F	G	H	I	J
55										
56			Type a name to look for :			eric				
57			Type a month to look for :			mar				
58										
59				The result is :		69				
60				=VLOOKUP(F56,C50:F54,MATCH(F57,D49:F49,0)+1,FALSE)						
61										
62			Example 2							
63			This example shows how the =VLOOKUP() is used to pick the cost of a spare part for							
64			different makes of cars.							
65			The =VLOOKUP() scans down row headings in column F for the spare part entered in column C.							
66			When the make is found, the =VLOOKUP() then scans across to find the price, using the							
67			result of the =MATCH() function to find the position of the make of car.							
68										
69			The functions use the absolute ranges indicated by the dollar symbol . This ensures that							
70			when the formula is copied to more cells, the ranges for =VLOOKUP() and =MATCH() do							
71			not change.							
72										
73			Maker	Spare	Cost		Lookup Table			
74			Vauxhall	Ignition	£50		Vauxhall	Ford	VW	
75			VW	GearBox	£600		GearBox	500	450	600
76			Ford	Engine	£1,200		Engine	1000	1200	800
77			VW	Steering	£275		Steering	250	350	275
78			Ford	Ignition	£70		Ignition	50	70	45
79			Ford	CYHead	£290		CYHead	300	290	310
80			Vauxhall	GearBox	£500					
81			Ford	Engine	£1,200					
82				=VLOOKUP(C81,F75:I79,MATCH(B81,G74:I74,0)+1,FALSE)						
83										
84										
85			Example 3							
86			In the following example a builders merchant is offering discount on large orders.							
87			The Unit Cost Table holds the cost of 1 unit of Brick, Wood and Glass.							
88			The Discount Table holds the various discounts for different quantities of each product.							
89			The Orders Table is used to enter the orders and calculate the Total.							
90										
91			All the calculations take place in the Orders Table.							
92			The name of the Item is typed in column C of the Orders Table.							
93										
94			The Unit Cost of the item is then looked up in the Unit Cost Table.							
95			The FALSE option has been used at the end of the function to indicate that the product							
96			names down the side of the Unit Cost Table are not sorted.							
97			Using the FALSE option forces the function to search for an exact match. If a match is							
98			not found, the function will produce an error.							
99			=VLOOKUP(C126,C114:D116,2,FALSE)							
100										
101			The discount is then looked up in the Discount Table							
102			If the Quantity Ordered matches a value at the side of the Discount Table the =VLOOKUP will							
103			look across to find the correct discount.							
104			The TRUE option has been used at the end of the function to indicate that the values							
105			down the side of the Discount Table are sorted.							
106			Using TRUE will allow the function to make an approximate match. If the Quantity Ordered does							
107			not match a value at the side of the Discount Table, the next lowest value is used.							
108			Trying to match an order of 125 will drop down to 100, and the discount from							

	A	B	C	D	E	F	G	H	I	J	
109		the 100 row is used.									
110		=VLOOKUP(D126,F114:I116,MATCH(C126,G113:I113,0)+1,TRUE)									
111											
112							Discount Table				
113		Unit Cost Table					Brick	Wood	Glass		
114		Brick	£2			1	0%	0%	0%		
115		Wood	£1			100	6%	3%	12%		
116		Glass	£3			300	8%	5%	15%		
117											
118											
119		Orders Table									
120		Item	Units	Unit Cost	Discount	Total					
121		Brick	100	£2	6%	£188					
122		Wood	200	£1	3%	£194					
123		Glass	150	£3	12%	£396					
124		Brick	225	£2	6%	£423					
125		Wood	50	£1	0%	£50					
126		Glass	500	£3	15%	£1,275					
127											
128		Formula for :									
129		Unit Cost	=VLOOKUP(C126,C114:D116,2,FALSE)								
130		Discount	=VLOOKUP(D126,F114:I116,MATCH(C126,G113:I113,0)+1,TRUE)								
131		Total	=(D126*E126)-(D126*E126*F126)								

	A	B	C	D	E	F	G	H
1	WEEKDAY							
2								
3			Date	Weekday				
4			Thu 01-Jan-98	5	=WEEKDAY(C4)			
5			Thu 01-Jan-98	5	=WEEKDAY(C5)			
6			Thu 01-Jan-98	5	=WEEKDAY(C6,1)			
7			Thu 01-Jan-98	4	=WEEKDAY(C7,2)			
8			Thu 01-Jan-98	3	=WEEKDAY(C8,3)			
9								
10	What Does It Do?							
11	This function shows the day of the week from a date.							
12								
13	Syntax							
14	=WEEKDAY(Date,Type)							
15	Type : This is used to indicate the week day numbering system.							
16	1 : will set Sunday as 1 through to Saturday as 7							
17	2 : will set Monday as 1 through to Sunday as 7.							
18	3 : will set Monday as 0 through to Sunday as 6.							
19	If no number is specified, Excel will use 1.							
20								
21	Formatting							
22	The result will be shown as a normal number.							
23	To show the result as the name of the day, use Format, Cells, Custom and set							
24	the Type to ddd or dddd .							
25								
26	Example							
27	The following table was used by a hotel which rented a function room.							
28	The hotel charged different rates depending upon which day of the week the booking was for.							
29	The Booking Date is entered.							
30	The Actual Day is calculated.							
31	The Booking Cost is picked from a list of rates using the =LOOKUP() function.							
32								
33			Booking Date	Actual Day	Booking Cost			
34			7-Jan-98	Wednesday	£30.00			
35					=LOOKUP(WEEKDAY(C34),C39:D45)			
36								
37			Booking Rates					
38			Day Of Week	Cost				
39			1	£50				
40			2	£25				
41			3	£25				
42			4	£30				
43			5	£40				
44			6	£50				
45			7	£100				

	A	B	C	D	E	F	G	H
1	WORKDAY							
2								
3				StartDate	Days	Result		
4				1-Jan-98	28	35836	=WORKDAY(D4,E4)	
5				1-Jan-98	28	10-Feb-98	=WORKDAY(D5,E5)	
6								
7	What Does It Do?							
8	Use this function to calculate a past or future date based on a starting date and a							
9	specified number of days. The function excludes weekends and holidays and can							
10	therefore be used to calculate delivery dates or invoice dates.							
11								
12	Syntax							
13	=WORKDAY(StartDate,Days,Holidays)							
14								
15	Formatting							
16	The result will normally be shown as a number which can be formatted to a							
17	normal date by using Format,Cells,Number,Date.							
18								
19	Example							
20	The following example shows how the function can be used to calculate delivery dates							
21	based upon an initial Order Date and estimated Delivery Days.							
22								
23				Order Date	Delivery Days	Delivery Date		
24				Mon 02-Feb-98	2	Wed 04-Feb-98		
25				Tue 15-Dec-98	28	Tue 26-Jan-99		
26						=WORKDAY(D25,E25,D28:D32)		
27				Holidays				
28	Bank Holiday			Fri 01-May-98				
29	Xmas			Fri 25-Dec-98				
30	New Year			Wed 01-Jan-97				
31	New Year			Thu 01-Jan-98				
32	New Year			Fri 01-Jan-99				

	A	B	C	D	E	F	G	H	I	J
1	YEAR									
2										
3			Date	Year						
4			25-Dec-98	1998	=YEAR(C4)					
5										
6	What Does It Do?									
7	This function extracts the year number from a date.									
8										
9	Syntax									
10	=YEAR(Date)									
11										
12	Formatting									
13	The result is shown as a number.									

	A	B	C	D	E	F	G	H
1	YEARFRAC							
2								
3			Start Date	End Date	Fraction			
4			1-Jan-98	1-Apr-98	0.25	=YEARFRAC(C4,D4)		
5			1-Jan-98	31-Dec-98	1	=YEARFRAC(C5,D5)		
6			1-Jan-98	1-Apr-98	25%	=YEARFRAC(C6,D6)		
7								
8	What Does It Do?							
9	This function calculates the difference between two dates and expresses the result							
10	as a decimal fraction.							
11								
12	Syntax							
13	=YEARFRAC(StartDate,EndData,Basis)							
14	Basis : Defines the calendar system to be used in the function.							
15	0 : or omitted USA style 30 days per month divided by 360.							
16	1 : 29 or 30 or 31 days per month divided by 365.							
17	2 : 29 or 30 or 31 days per month divided by 360.							
18	3 : 29 or 30 or 31 days per month divided by 365.							
19	4 : European 29 or 30 or 31 days divided by 360.							
20								
21	Formatting							
22	The result will be shown as a decimal fraction, but can be formatted as a percent.							
23								
24	Example							
25	The following table was used by a company which hired people on short term contracts							
26	for a part of the year.							
27	The Pro Rata Salary which represents the annual salary is entered.							
28	The Start and End dates of the contract are entered.							
29	The =YEARFRAC() function is used to calculate Actual Salary for the portion of the year.							
30								
31		Start	End	Pro Rata Salary	Actual Salary			
32		1-Jan-98	31-Dec-98	£12,000	£12,000	=YEARFRAC(B32,C32+1,4)*D32		
33		1-Jan-98	31-Mar-98	£12,000	£3,000	=YEARFRAC(B33,C33+1,4)*D33		
34		1-Jan-98	30-Jun-98	£12,000	£6,000	=YEARFRAC(B34,C34+1,4)*D34		
35								
36	Note							
37	The extra 1 has been added to the End date to compensate for the fact that the =YEARFRAC()							
38	function calculates from the Start date up to, but not including, the End date.							

	A	B	C	D	E	F	G	H	I
1	Project Dates			House Building					
2									
3		Target Delivery	Tue 27-Jan-98				Target Budget	£12,000	
4									
5		Job Stage	Start Date	Days Required	End Date		Daily Cost	Total	
6		Survey	Mon 05-Jan-98	5	Fri 09-Jan-98		£200	£1,000	
7		Foundation	Mon 12-Jan-98	4	Thu 15-Jan-98		£1,000	£4,000	
8		Walls	Fri 16-Jan-98	3	Tue 20-Jan-98		£800	£2,400	
9		Roof	Wed 21-Jan-98	6	Wed 28-Jan-98		£400	£2,400	
10		Electrics	Thu 29-Jan-98	4	Tue 03-Feb-98		£300	£1,200	
11									
12		Actual Delivery	Tue 03-Feb-98				Total Cost	£11,000	
13									
14		Against Target	5 days behind				Budget %	92%	
15									
16		Total Days	22						