

Excel 2003

Calculating With
Advanced Formulas

User's Manual

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Introduction

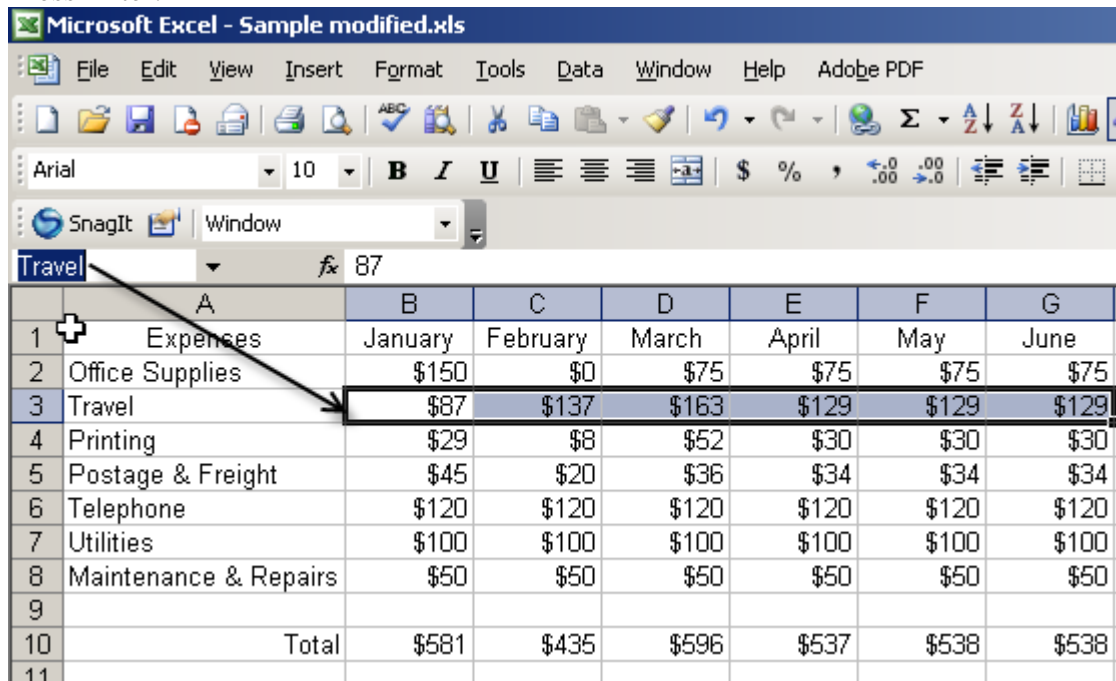
Advanced math problems using simple math can be very time-consuming to solve. Excel has created many sophisticated functions for you to use instead; all you need to do is enter the data.

Create and Apply a Name for a Range of Cells

A range name is a text reference for a range of cells. Range names help to determine which data range is referenced in formulas instead of guessing at cell references.

Create a Name for a Range of Cells:


1. Select the range of cells to name.
2. Click the Name Box to the left of the formula bar. (*Alternative from Menu bar: Insert→Name→Define.*)
3. Type the name for the range.
4. Press Enter.

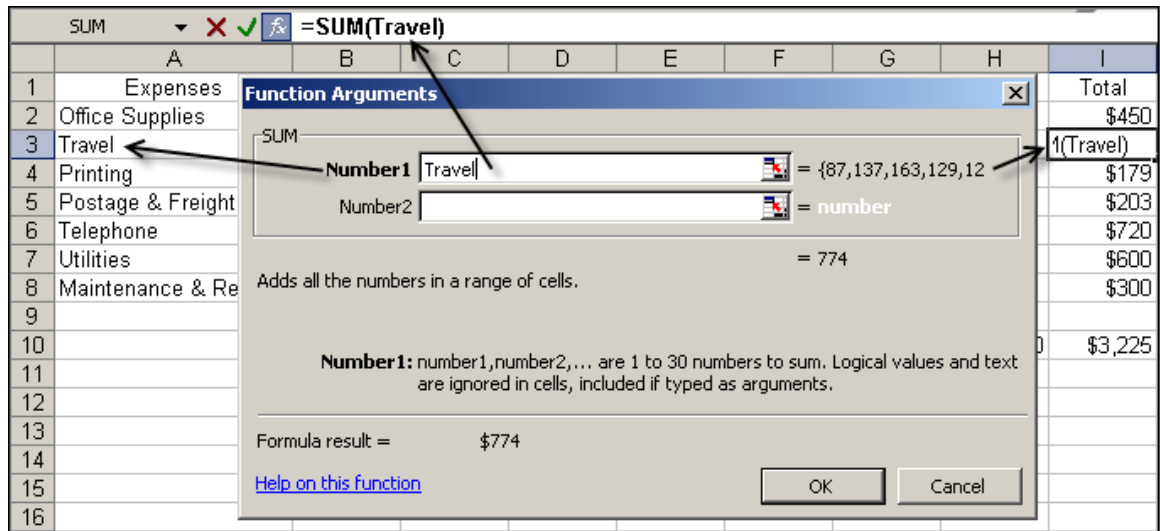


The screenshot shows the Microsoft Excel 2003 interface. The Name Box on the left of the formula bar displays 'Travel', and the formula bar shows '=87'. An arrow points from the Name Box to the range of cells B3:G3 in the spreadsheet, which are highlighted in blue. The spreadsheet data is as follows:

	A	B	C	D	E	F	G
1	Expenses	January	February	March	April	May	June
2	Office Supplies	\$150	\$0	\$75	\$75	\$75	\$75
3	Travel	\$87	\$137	\$163	\$129	\$129	\$129
4	Printing	\$29	\$8	\$52	\$30	\$30	\$30
5	Postage & Freight	\$45	\$20	\$36	\$34	\$34	\$34
6	Telephone	\$120	\$120	\$120	\$120	\$120	\$120
7	Utilities	\$100	\$100	\$100	\$100	\$100	\$100
8	Maintenance & Repairs	\$50	\$50	\$50	\$50	\$50	\$50
9							
10	Total	\$581	\$435	\$596	\$537	\$538	\$538
11							

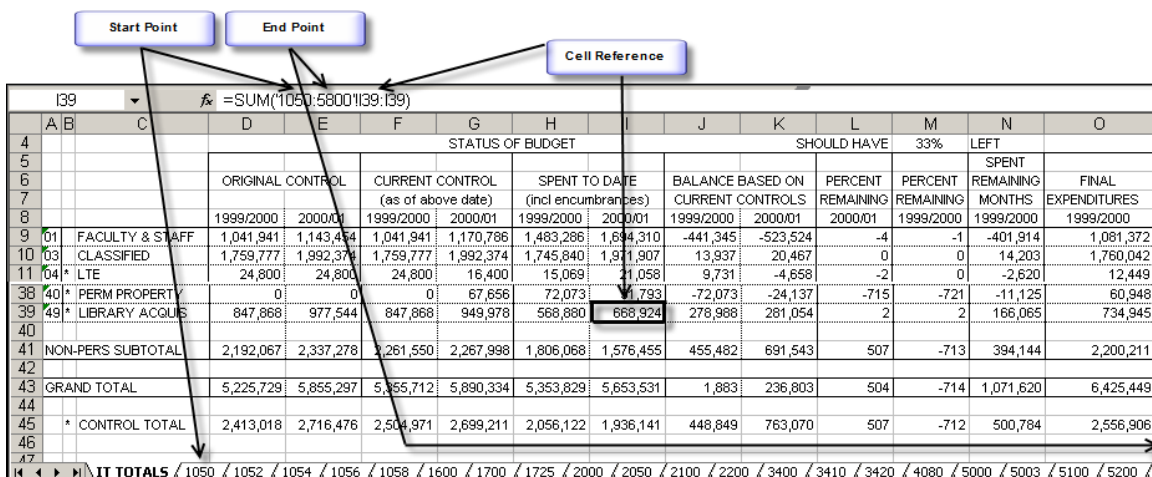
Calculating with Named Ranges:

1. Select the cell where you want the answer to the formula to appear.
2. Click on the Insert Function button  located on the formula bar.
3. Select the desired function.
4. Click OK.
5. Type the Named Range in the Number 1 box of the Function Arguments dialog box.
6. Click OK.



Calculate Across Worksheets

When you want to create formulas that pull data from several worksheets, this can be accomplished by calculating across worksheets. A 3-D (three dimensional) reference is a cell reference that is in the same location on every worksheet. And can only be used in a workbook with multiple worksheets. A 3-D reference contains a start point (the first worksheet), end point (the last worksheet) and a cell reference. 3-D references can be used in some functions and certain formulas.



Calculate Across Worksheets

1. Select the cell where the formula will appear.
2. Start writing the formula until you need a cell reference or cell range.
3. Select the first worksheet that will be included in the formula.
4. Select the cell or range of cells you will use from each worksheet.
(The cell or range of cells will be the same on each worksheet used in the calculation.)
5. Complete the formula by pressing Shift and selecting the last worksheet that will be included in the formula.
6. Release Shift and press Enter.

Calculating with Date and Time Functions

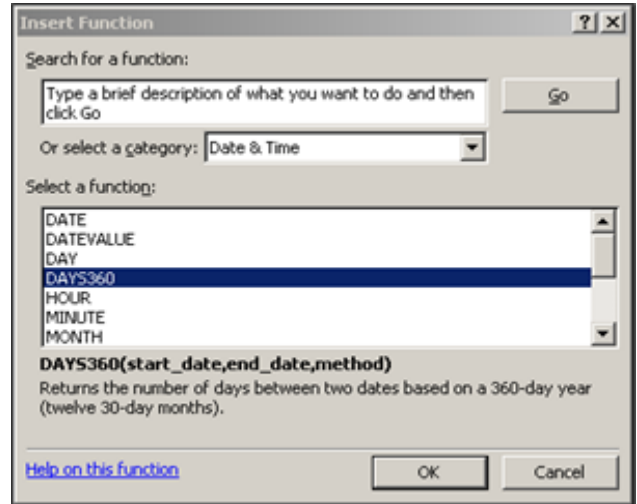
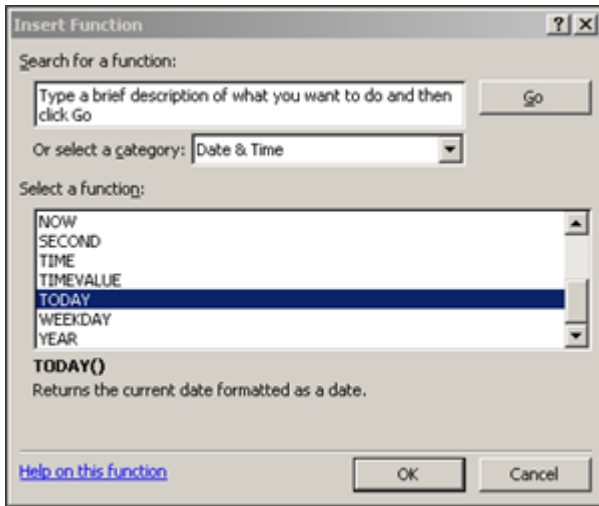
When you enter a date or time in a worksheet as text, you cannot perform calculations. The date and time need to be entered as a special code. Rather than trying to determine how many days are in a month and adding that to a formula, you can use a date function to automatically calculate that for you.

There are nine categories of functions in Excel and each category has a specific use:


<u>Financial:</u>	Performs common business calculations including accounting and finance.
<u>Date & Time:</u>	Performs functions involving date or time data.
<u>Math & Trig:</u>	Performs simple to complex mathematical functions.
<u>Statistical:</u>	Performs statistical analysis on ranges of data.
<u>Lookup & Reference</u>	Finds values in a corresponding table or list and incorporates the data into the calculation.
<u>Database:</u>	Performs a function only on data that meets a criterion.
<u>Text:</u>	Allows text to be manipulated within a calculation that also contains data.
<u>Logical:</u>	Performs what-if analysis to see if a condition is true or false.
<u>Information:</u>	Performs an analysis on a range of data to determine the type of data contained in a cell.

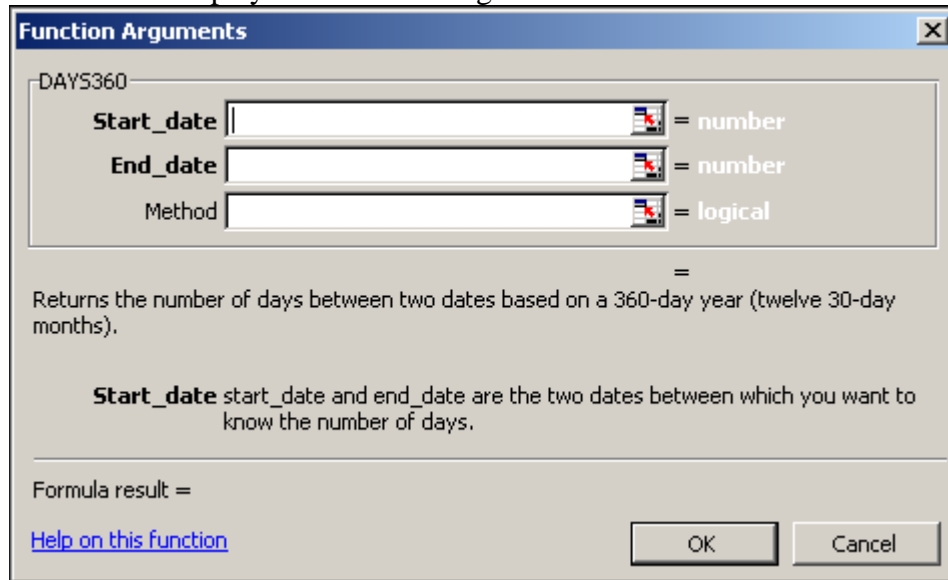
Date & Time Functions

The **Date & Time** function assigns a serial number to date and time data so it can be calculated. The date and time is still displayed as text in the worksheet. Two examples of Date & Time functions are:



To calculate with a Date & Time Function


1. Select the cell where you want to place the formula.
2. Click the Insert Function  button.
3. From the “Or select a category” drop-down list, select Date & Time
4. From the “Select a function” list, select the Date & Time function you want.
5. Click OK to display the Function Arguments box.



6. Enter the function arguments.
7. Click OK.

Calculating with Financial Functions

To calculate with a Financial Function

1. Select the cell where you want to place the formula.
2. Click the Insert Function  button.
3. From the “Or select a category” drop-down list, select Financial
4. From the “Select a function” list, select the Financial function you want.
5. Click OK to display the Function Arguments box.
6. Enter the Function Arguments.
7. Click OK.

	A	B	C
1	Cost of Car	\$25,000	
2	Length of Loan	5 years	
3	Interest	6.50%	
4			
5	Monthly Pmt	(\$489.15)	

Function Arguments

PMT

Rate = 0.005416667

Nper = 60

Pv = 25000

Fv = number

Type = number

= -489.1537055

Calculates the payment for a loan based on constant payments and a constant interest rate.

Rate is the interest rate per period for the loan. For example, use 6%/4 for quarterly payments at 6% APR.


Formula result = (\$489.15)

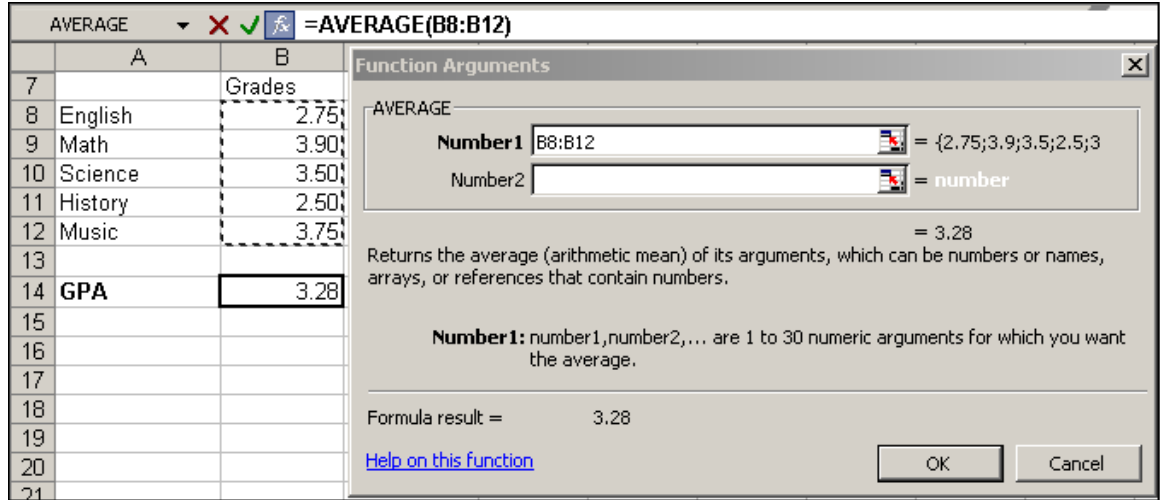
[Help on this function](#)

OK Cancel

Calculating with Statistical Functions

To calculate with a Statistical Function

1. Select the cell where you want to place the formula.
2. Click the Insert Function  button.
3. From the “Or select a category” drop-down list, select Statistical.
4. From the “Select a function” list, select the Statistical function you want.
5. Click OK to display the Function Arguments box.
6. Enter the Function Arguments.
7. Click OK.



	A	B
7		Grades
8	English	2.75
9	Math	3.90
10	Science	3.50
11	History	2.50
12	Music	3.75
13		
14	GPA	3.28
15		
16		
17		
18		
19		
20		
21		

Function Arguments

AVERAGE

Number1: B8:B12 = {2.75;3.9;3.5;2.5;3.75}

Number2: = number

= 3.28

Returns the average (arithmetic mean) of its arguments, which can be numbers or names, arrays, or references that contain numbers.


Number1: number1,number2,... are 1 to 30 numeric arguments for which you want the average.

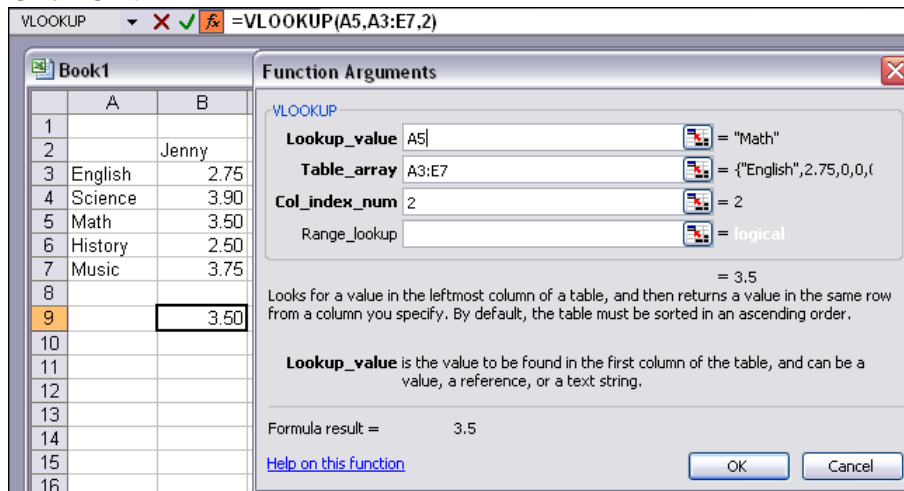
Formula result = 3.28

[Help on this function](#) OK Cancel

Calculating with Lookup and Reference Functions

To calculate with a Lookup & Reference Function

1. Select the cell where you want to place the formula.
2. Click the Insert Function  button.
3. From the “Or select a category” drop-down list, select Lookup & Reference.
4. From the “Select a function” list, select the Lookup Reference function you want.
5. Click OK to display the Function Arguments box.
6. Enter the Function Arguments.
7. Click OK.



	A	B
1		
2		Jenny
3	English	2.75
4	Science	3.90
5	Math	3.50
6	History	2.50
7	Music	3.75
8		
9		3.50
10		
11		
12		
13		
14		
15		
16		

Function Arguments

VLOOKUP

Lookup_value: A5 = "Math"

Table_array: A3:E7 = {"English";2.75;0,0,0,0,0}

Col_index_num: 2 = 2

Range_lookup: = logical

= 3.5

Looks for a value in the leftmost column of a table, and then returns a value in the same row from a column you specify. By default, the table must be sorted in an ascending order.

Lookup_value is the value to be found in the first column of the table, and can be a value, a reference, or a text string.

Formula result = 3.5

[Help on this function](#) OK Cancel