

USING FUNCTIONS

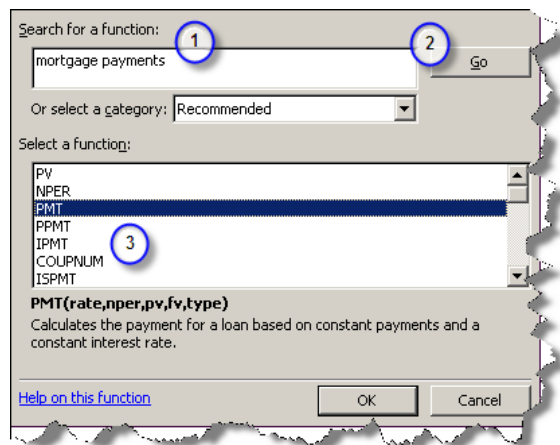
Functions are predefined formulas that run calculations by using values, called arguments. They have five parts: The **structure** of a function begins with an equal sign (=), followed by the **function name**, an opening **bracket**, the **argument(s)** for the function separated by commas, and a closing **bracket**. For example: =ROUND ( A1 , 2 )

FUNCTION WIZARD

**Working Example:** Imagine you need to find out how much a monthly payment would be for a \$350,000, 25-year mortgage, with a 7% annual interest rate. Click the

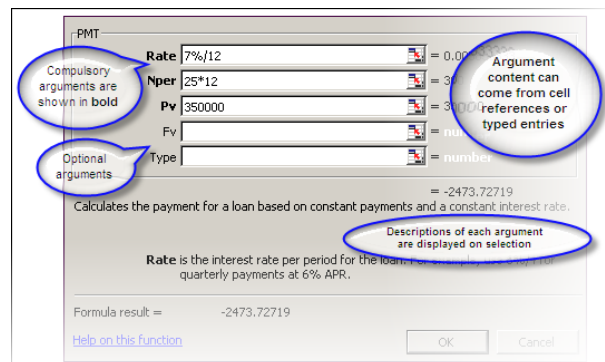
**Insert Function** button 

- 1 Type a brief description of what you want to do in the **Search for a function** box eg, 'mortgage payment' or similar. Click **Go**.
- 2 A list of likely functions appears in the 'Select a function' box. Click a function to read its description near the bottom of the Insert Function dialog box.
- 3 Click **OK** to insert the selected function in the worksheet and open the Function Arguments box.



UNDERSTANDING ADVANCED FUNCTIONS

The **Function Arguments** dialog box shows the arguments that tell the function what to calculate. Arguments in **bold** are **compulsory**; any other arguments are optional. To find out the argument meaning, click in the box beside its name, and read its description eg, '**Nper** is the total number of payments for the loan.'



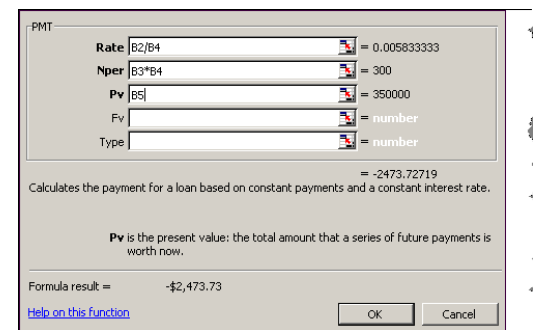
To continue with the PMT function example, in the **Rate** box enter the Interest rate for the loan. Divide this value by 12 to calculate monthly payments: **7%/12**


In the **Nper** box, enter the number of loan payments. **25\*12** (The 25-year mortgage period is multiplied by 12 to make 12 monthly payments per year = 300).

In the **Pv** box, enter the 'loan value' eg **350000**. **Note:** Enter values without thousands separators: ie instead of 180,000, use 180000 to avoid errors.

In this example, there are two non-compulsory arguments, **Fv** and **Type**. These arguments enable further features, such as lump sum additions and advance payments; a simple result can be obtained if they are ignored.


Click **OK**. The result (**\$2,473.73**) is displayed in the destination cell.



*Tip: Functions can be combined with cell references, either by using the find cells button  or hand-typing the references.*

COMMON FUNCTIONS AND THEIR USES

There are over 350 Excel functions, which can be found by using the Insert Function wizard; and the following two are very commonly used world-wide:

*Tip: For a list of functions, click a cell and press **SHIFT+F3**; or use the **Insert Function** button: *

For further information or help with these functions, use the **Type a question for help** feature.

IF

If function returns one value if a condition you specify is to TRUE and another value if it evaluates to FALSE.

	A	B	C	D	E
1					
2		<b>Name</b>	<b>Fees Earned</b>	<b>Bonus</b>	
3		Anna	\$ 50,500	Yes	
4		Barbie	\$ 47,600	Yes	
5		Candice	\$ 48,350	Yes	
6		Danielle	\$ 46,050	No	

VLOOKUP

Searches for a value in the first column of a table and returns a value in the same row from another column in the table.

D3     $=VLOOKUP(C3,$C$9:$D$13,2)$

	A	B	C	D	E
1					
2		<b>Name</b>	<b>Fees Earned</b>	<b>Bonus</b>	
3		Anna	\$ 50,500	\$ 1,500	
4		Barbie	\$ 47,600	\$ 1,000	
5		Candice	\$ 48,350	\$ 1,000	
6		Danielle	\$ 46,050	\$ 500	
7					
8					
9			\$ 45,000	\$ 500	
10			\$ 47,500	\$ 1,000	
11			\$ 50,000	\$ 1,500	
12			\$ 52,500	\$ 2,000	
13			\$ 55,000	\$ 2,500	

DISPLAY A FUNCTION TOOLTIP

Select a cell, type an equal sign (=), a function name, then an opening bracket: eg =PMT( Excel displays the on-screen help. Type a value and then a comma. Excel displays the next listed argument from the next.

	A	B	C	D
1				
2		Interest Rate	7%	
3		Years of the Loan	25	
4		Payments per Year	12	
5		Loan Amount	\$350,000	
6				
7		Regular Payment	=PMT(	
8				
9				

Excel provides on-screen help with the function

**PMT**

Calculates the payment for a loan based on constant rate.

**Syntax**

Two examples of how this function may be completed:  
 = PMT ( 7% / 12 , 25 \* 12 , 350000 ) or  
 = PMT ( B2 / B4 , B3 \* B4 , B5 )

COUNTIF

You may need to count the cells that contain a specific value or conform to specific guidelines. For example, how many cells have a value greater than 10? This type of counting can be done with the **COUNTIF** function. This function requires two arguments: a range, and a value, text, or condition test to base the search on. COUNTIF has the form **=COUNTIF(range, criteria)** It counts the number of cells in the **range** that satisfy the **criteria**. The criteria can take the form of a number, text, or an expression. The criteria could be 100, "100", "Gold", or ">100".

In the range area, select the range in which the criteria is to be counted. In this case, A4 to A29 then either type in or select a cell that contains the criteria to count

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2													
3		<b>Initials</b>	<b>Dept</b>	<b>Jan-07</b>		AM							
4		AM	Accounts	3,000		HW							
5		AM	Accounts	1,500		JK							
6		HW	Accounts	2,000		LR							
7		HW	Accounts	2,000		VS							
8		JK	Accounts	2,800									
9		JK	Accounts	1,500									
10		LR	Accounts	1,200									
11		VS	Accounts	2,000									
12		VS	Accounts	1,500									
13		AM	Audit	5,000									
14		HW	Audit	15,000									
15		JK	Audit	5,000									
16		JK	Audit	10,000									
17		JK	Audit	10,000									
18		AM	Other	500									
19		JK	Other	500									
20		VS	Other	1,000									
21		AM	Tax	4,000									
22		HW	Tax	15,000									
23		HW	Tax	3,000									
24		JK	Tax	10,000									
25		LR	Tax	3,000									
26		LR	Tax	5,000									
27		VS	Tax	1,000									
28		VS	Tax	6,000									
29		VS	Tax	3,000									

Function Arguments dialog box for COUNTIF:  
 Range: \$A\$4:\$A\$29  
 Criteria: E3  
 Formula result: 5

The final function reads =COUNTIF(\$A\$4:\$A\$29,E3)

SUMIF

The **SUMIF** function is used to **add** the cell contents if particular criteria are satisfied. It requires three arguments: a **range**, and a value, text, or condition test to base the search on (**criteria**), and an optional **sum\_range**.

SUMIF has the form: =SUMIF(range,criteria,sum\_range)  
 The criteria can be a number, text, or an expression.

	A	B	C	D	E	F	G	H	I	J
1										
2										
3		<b>Initials</b>	<b>Dept</b>	<b>Jan-07</b>		AM				
4		AM	Accounts	3,000						
5		AM	Accounts	1,500						
6		HW	Accounts	2,000						
7		HW	Accounts	2,000						
8		JK	Accounts	2,800						
9		JK	Accounts	1,500						
10		LR	Accounts	1,200						
11		VS	Accounts	2,000						
12		VS	Accounts	1,500						
13		AM	Audit	5,000						
14		HW	Audit	15,000						
15		JK	Audit	5,000						
16		JK	Audit	10,000						
17		JK	Audit	10,000						
18		AM	Other	500						
19		JK	Other	500						
20		VS	Other	1,000						
21		AM	Tax	4,000						
22		HW	Tax	15,000						
23		HW	Tax	3,000						
24		JK	Tax	10,000						
25		LR	Tax	3,000						
26		LR	Tax	5,000						
27		VS	Tax	1,000						
28		VS	Tax	6,000						
29		VS	Tax	3,000						

Function Arguments dialog box for SUMIF:  
 Range: \$A\$4:\$A\$29  
 Criteria: E3  
 Sum\_range: \$C\$4:\$C\$29  
 Formula result: 14000

Tip: If you wanted to add all of the Fees that were greater than 5000, your formula would read =SUMIF(C4:C29,">5000"). The answer would be 66000.

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