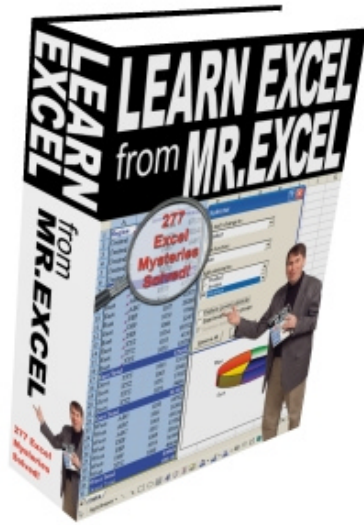




Free Preview – Week #9
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This week: Four tips for using Functions.

CALCULATE A LOAN PAYMENT

Problem: You are considering buying a car. You want to calculate the loan payment, as shown in Fig. 325.

Strategy: Use the PMT function. Follow these steps.

	A	B
1		
2	Price	25000
3	Term	60
4	Rate	5%
5		
6	Pmt	
7		

Fig. 325

- 1) Enter Price, Term in Months, and Annual Percentage Rate in cells B2:B4, as shown in Fig. 325.

The PMT function has three required arguments. The first argument is the interest rate. The second argument is the number of payments in the loan. The final argument is the original loan amount.

Gotcha: The interest rate must be entered as a percentage. If you are planning on monthly payments (which is normal), then you have to divide the annual percentage rate by twelve.

Gotcha: In financial terms, the bank is loaning you \$25,000 – a positive amount coming to you. Thus, the payments that you make to the bank are really a negative amount – it is money leaving your wallet. For this reason, the result of the PMT function will be negative. However, you can precede the PMT function with a minus sign in order to return a positive payment amount.

- 2) Enter this formula in cell B6: `=PMT(B4/12,B3,B2)`. See Fig. 326.

	fx =-PMT(B4/12,B3,B2)		
	B	C	
Price	25000		
Term	60		
Rate	5%		
Pmt	\$471.78		

Fig. 326

**Part
II**

Summary: The PMT function is great at calculating house or car loans.

Functions Discussed: `=PMT()`

CALCULATE MANY SCENARIOS FOR LOAN PAYMENTS

Problem: You are considering buying a car. You used the previous tip to calculate a loan payment, as shown in Fig. 326. You want to do some “what-if” scenarios in order to see various options of increasing or decreasing the term or price.

Strategy: Follow the same setup that you used for the previous tip, as shown in Fig. 327.

- 1) Enter Price, Term in Months, and Annual Percentage Rate in cells B2:B4. See Fig. 327.

- 2) Enter this formula in cell B6: `=PMT(B4/12,B3,B2)`. See Fig. 327.

	B
Price	25000
Term	60
Rate	5%
Pmt	\$471.78

Fig. 327

- 3) Copy cells B2:B6 over for several columns. Plug in different numbers for the price and/or term, as shown in Fig. 328.

	B	C	D	E	F	G	H
Price	25000	25000	25000	29000	29000	29000	21000
Term	60	48	54	60	66	72	60
Rate	5%	5%	5%	5%	5%	5%	5%
Pmt	\$471.78	\$575.73	\$517.96	\$547.27	\$503.49	\$467.04	\$396.30

Fig. 328

Summary: This is where Excel shines. After you have entered the formulas for one loan model, you can easily copy and create many more loan models.

Functions Discussed: `=PMT()`

Cross Reference: Calculate a Loan Payment

GET HELP ON ANY FUNCTION WHILE ENTERING A FORMULA

Problem: There are hundreds of functions available in Excel. You might remember that you need to use a particular function, but you cannot remember the sequence of the arguments in the function.

Strategy: In Excel 2002 and later, type the function and the opening parenthesis. A tooltip will appear to remind you of the order of the arguments. Any arguments in square brackets are optional. As shown in Fig. 329, the argument in bold is the argument that you need to type now.

	A	B	C	D	E
1	Price	25000			
2	Rate	5.9%			
3	Payment	-425			
4					
5	Term	=NPER(			
6		NPER(rate , pmt, pv, [fv], [type])			
7					
8					

Part II

Fig. 329

Alternate Strategy: If you are using Excel 2000 or if you need more help than the abbreviations of “pmt” and “pv”, then use the Function Arguments dialog. Type the function name and the opening parenthesis. Hit Ctrl+A to display the Function Arguments dialog, as shown in Fig. 330.

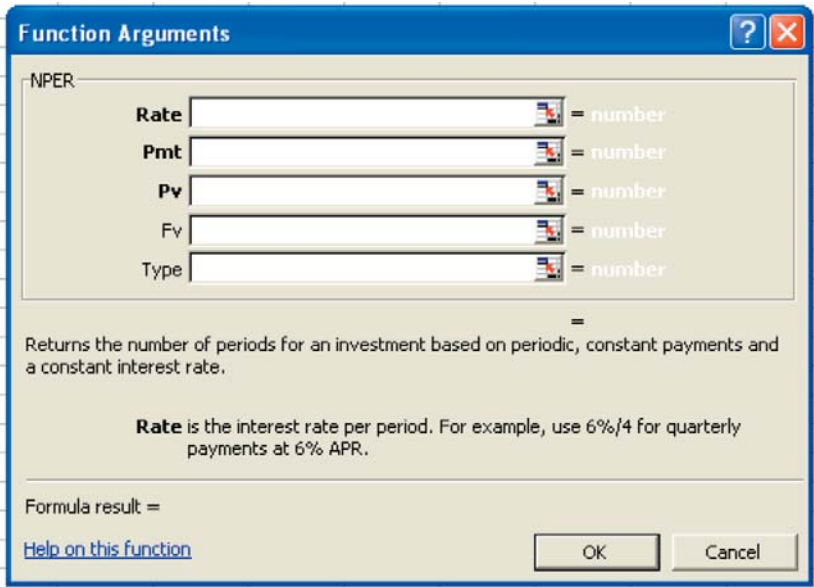
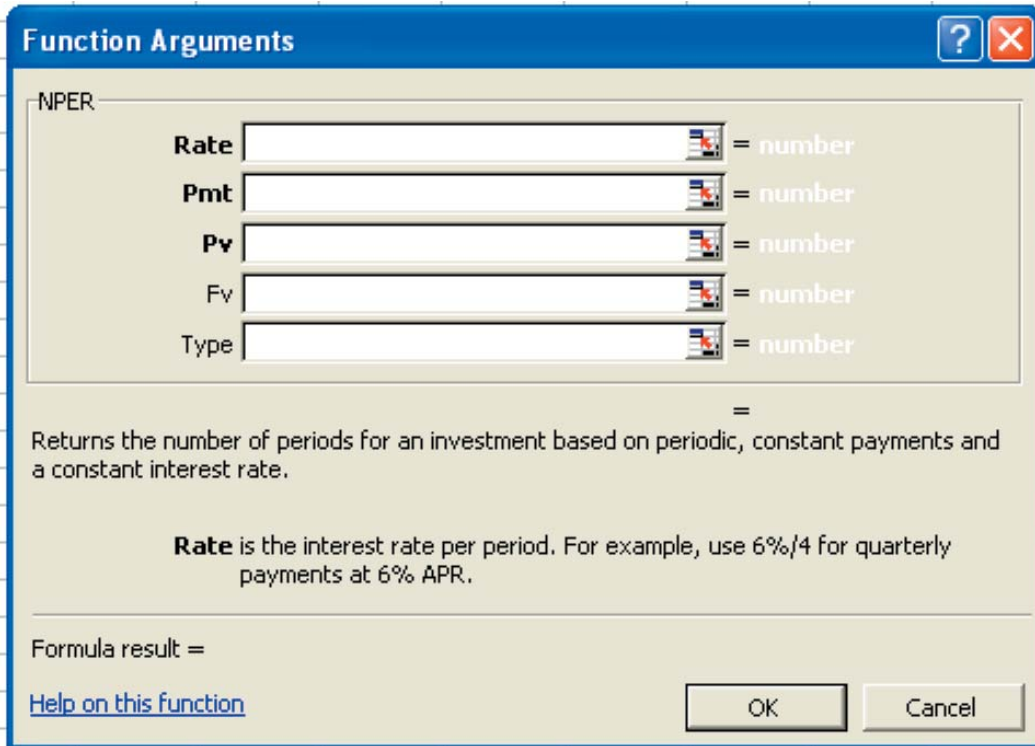


Fig. 330

The Function Arguments dialog shows the order of the arguments. Arguments in bold are required. The other arguments are optional. As you click into each text box in the dialog, the text at the bottom describes that argument in detail.

If you still need more help, there is a hyperlink to the complete help topic for this function.

As you enter the value for each argument, the Function Arguments dialog will calculate the numeric results of that argument. After you have entered all of the required arguments, the Function Wizard will display the result of the function, as shown in Fig. 331. You can consider whether this result is a reasonable number before accepting the formula.



The image shows the 'Function Arguments' dialog box for the NPV function. The title bar is blue with a question mark and a close button. The main area is light beige. At the top left, 'NPV' is written. Below it, there are five argument fields: 'Rate', 'Pmt', 'Pv', 'Fv', and 'Type'. Each field has a text box and a small icon to its right. To the right of each text box is the text '= number'. Below the arguments, there is a line with an equals sign. Underneath that, a description reads: 'Returns the number of periods for an investment based on periodic, constant payments and a constant interest rate.' Below this, a note states: 'Rate is the interest rate per period. For example, use 6%/4 for quarterly payments at 6% APR.' At the bottom left, it says 'Formula result =' followed by a blank space. Below that is a blue hyperlink 'Help on this function'. At the bottom right are 'OK' and 'Cancel' buttons.

Argument	Type
Rate	number
Pmt	number
Pv	number
Fv	number
Type	number

Returns the number of periods for an investment based on periodic, constant payments and a constant interest rate.

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

Formula result =

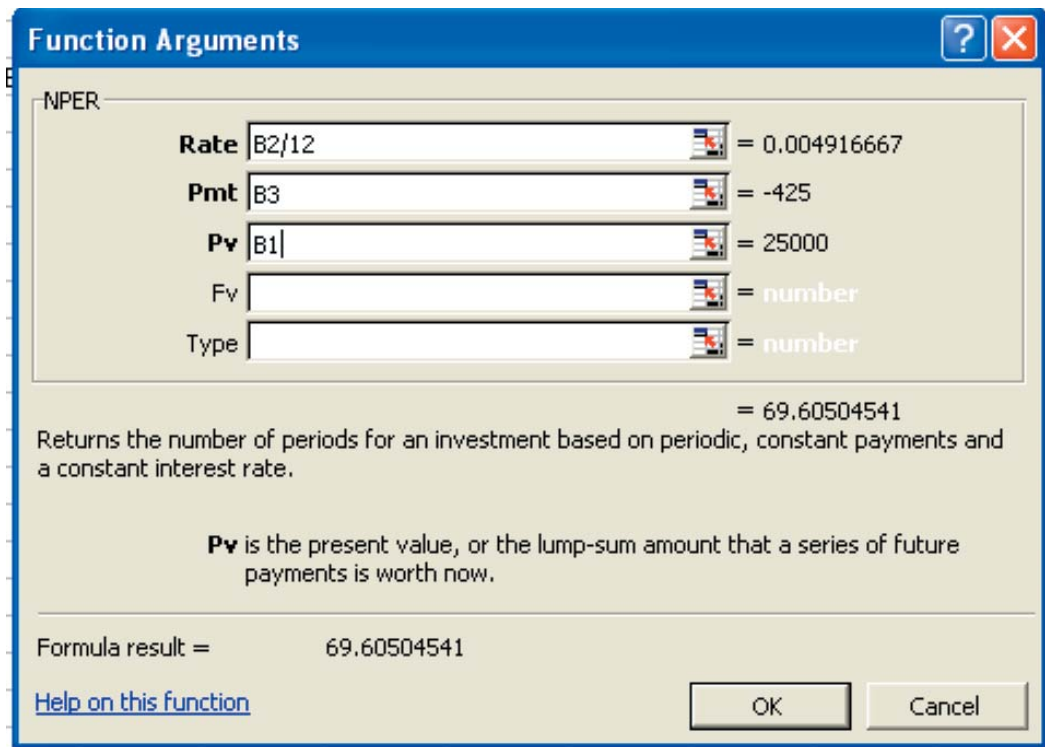
[Help on this function](#)

OK Cancel

Fig. 331

In Fig. 331, the formula result indicates that if you want to pay \$425 a month for a \$25,000 car, you will be paying for 69.6 months. This seems about right, so choose OK.

Result: As shown in Fig. 332, you've entered a fairly complex function without having to remember its details.



Part
II

Fig. 332

Summary: Use Ctrl+A shortcut after entering the opening parenthesis of a function to display the Function Arguments dialog box.

DISCOVER NEW FUNCTIONS USING THE *fx* BUTTON

Problem: There are hundreds of functions available in Excel. You know that you want to find a function for a geometric mean but have no clue which function might do this.

Strategy: As shown in Fig. 333, next to the formula bar, there is an *fx* button. Choose this button to bring up the Insert Function Wizard.

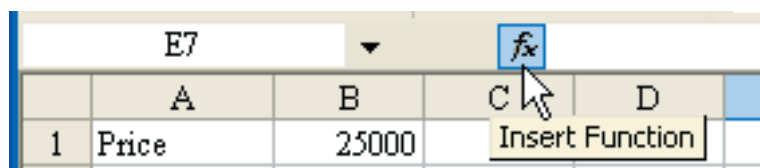


Fig. 333

The Insert Function dialog lists the most recently used functions by default. All of Excel's functions are categorized into areas such as Financial, Date & Time, Math & Trig, Statistical, Lookup & Reference, Database, Text, Logical, Information, and Engineering. If you can guess that the geometric mean function would be in the Statistical category, select this category from the dropdown, as shown in Fig. 334.

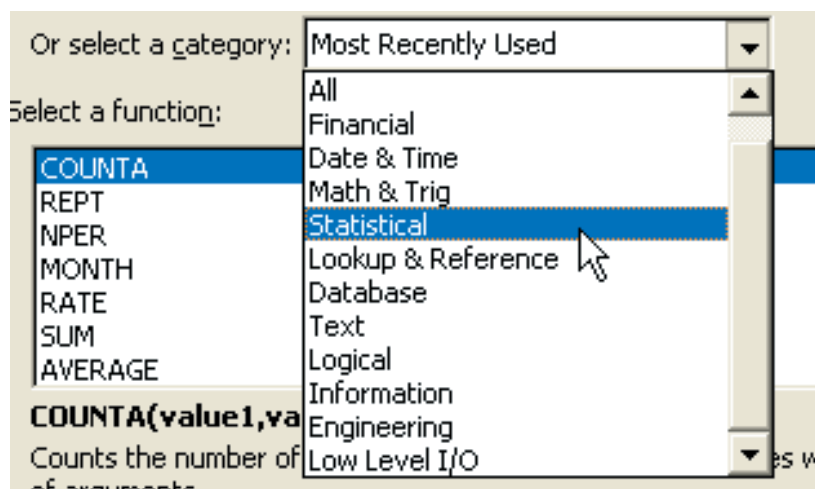
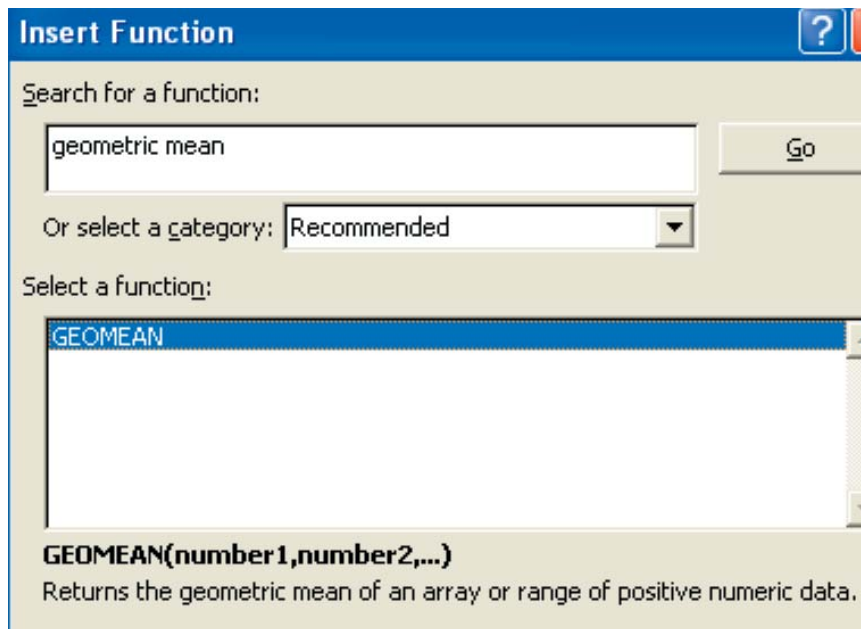


Fig. 334

Additional Information: Selecting Statistical provides you with over 100 choices. To narrow the choices down, type geometric mean in the search box and choose Go. This will result in one possible choice, as shown in Fig. 335.



**Part
II**

Fig. 335

Summary: Use the *fx* button to help find a function.