

# Microsoft Excel 2007

Advanced Level



SAMPLE

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**Contact Information**

**Australia / Asia Pacific / Europe (ex. UK) / Rest of the World**

Email: [info@cheltenhamcourseware.com.au](mailto:info@cheltenhamcourseware.com.au)

Web: [www.cheltenhamcourseware.com.au](http://www.cheltenhamcourseware.com.au)

**USA / Canada**

Email: [info@cheltenhamcourseware.com](mailto:info@cheltenhamcourseware.com)

Web: [www.cheltenhamcourseware.com](http://www.cheltenhamcourseware.com)

**UK**

Email: [info@cctglobal.com](mailto:info@cctglobal.com)

Web: [www.cctglobal.com](http://www.cctglobal.com)



SAMPLE

FUNCTIONS .....	5
<i>Excel 2007 Functions</i> .....	5
<i>Getting help about using a particular function</i> .....	6
<i>Using date and time functions: TODAY</i> .....	8
<i>Using date and time functions: DAY</i> .....	9
<i>Using date and time functions: MONTH</i> .....	9
<i>Using date and time functions: YEAR</i> .....	9
<i>Using mathematical functions: SUMIF</i> .....	10
<i>Using mathematical functions: ROUND</i> .....	12
<i>Using statistical functions: COUNT</i> .....	14
<i>Using statistical functions: COUNTA</i> .....	14
<i>Using statistical functions: COUNTIF</i> .....	15
<i>Using text functions: PROPER</i> .....	15
<i>Using text functions: UPPER</i> .....	16
<i>Using text functions: LOWER</i> .....	16
<i>Using text functions: CONCATENATE</i> .....	17
<i>Using financial functions: FV</i> .....	19
<i>Using financial functions: NPV</i> .....	21
<i>Using financial functions: PMT</i> .....	23
<i>Using financial functions: PV</i> .....	25
<i>Using financial functions: RATE</i> .....	27
<i>Using lookup and reference functions: HLOOKUP</i> .....	29
<i>Using lookup and reference functions: VLOOKUP</i> .....	31
<i>Using logical functions: IF</i> .....	34
<i>Using logical functions: AND</i> .....	37
<i>Using logical functions: OR</i> .....	37
<i>Using logical functions: ISERROR</i> .....	38
<i>Using database functions: DSUM</i> .....	39
<i>Using database functions: DMIN</i> .....	41
<i>Using database functions: DMAX</i> .....	44
<i>Using database functions: DCOUNT</i> .....	47
<i>Using nested functions</i> .....	50
USING ONE-INPUT OR TWO-INPUT DATA TABLES / WHAT-IF TABLES .....	52
<i>Using a one input Data Table command</i> .....	52
<i>Using a two input data table command</i> .....	55
A FIRST LOOK AT PIVOT TABLES.....	59
<i>Creating a PivotTable</i> .....	59
<i>Dropping data into the Pivot Table</i> .....	60
<i>Modifying data and refreshing the Pivot Table</i> .....	63
<i>Grouping data within a Pivot table</i> .....	65
SCENARIOS .....	68
<i>Scenario Manager - an example</i> .....	68
<i>Showing a scenario</i> .....	73
<i>Viewing an alternative scenario</i> .....	74
<i>Create a scenario summary</i> .....	74
AUDITING .....	76
<i>Tracing precedent cells</i> .....	76

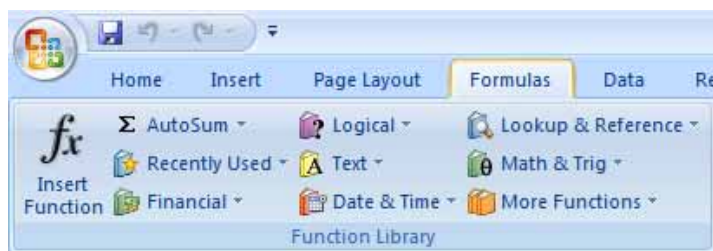
<i>Tracing the dependants of a cell</i> .....	77
<i>Displaying all formulas within a worksheet</i> .....	78
<i>Adding comments</i> .....	79
<i>Displaying comments</i> .....	80
<i>Removing comments</i> .....	80
<i>Editing comments</i> .....	81
MACROS .....	83
<i>Displaying the Developer tab</i> .....	83
<i>Recording and running macros</i> .....	83
<i>Lowering your macro security level</i> .....	88
<i>Customizing the Quick Access Toolbar</i> .....	88
<i>Changing the Quick Access Toolbar Macro icon</i> .....	90
<i>Removing a macro icon from the Quick Access Toolbar</i> .....	91
<i>Raising your macro security level</i> .....	92

SAMPLE

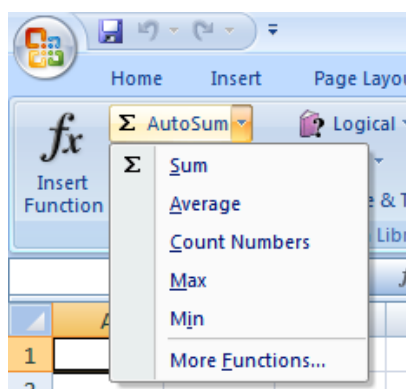
## Functions

### Excel 2007 Functions

- Open a new blank workbook.
- Click on the **Formulas** tab and you will see a group called the **Function Library**. As you can see this is divided into different function categories.

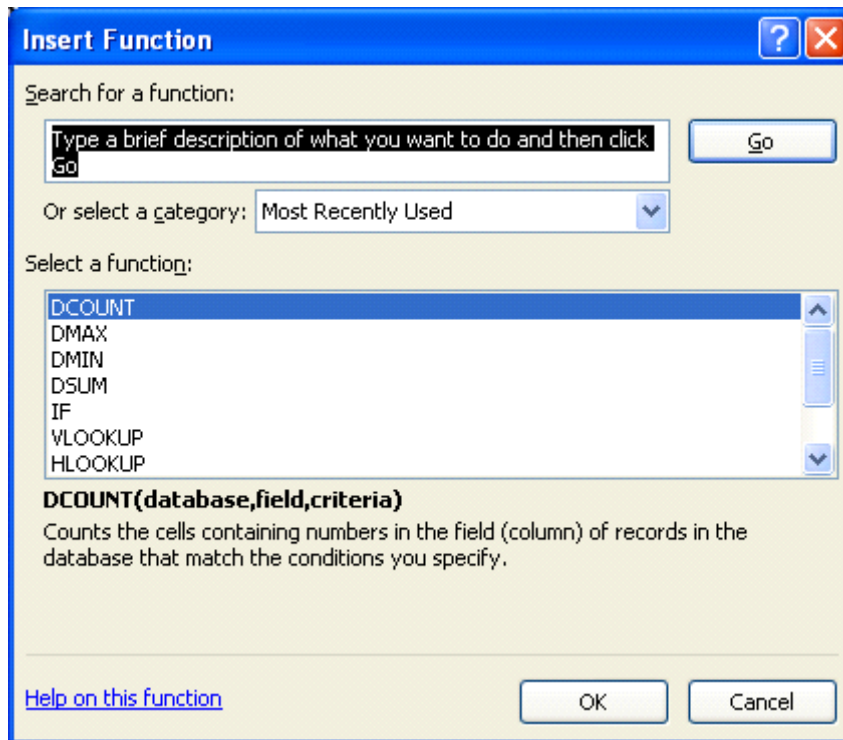


- Clicking on the **AutoSum** icon will display commonly used functions, such as **Sum** and **Average**.

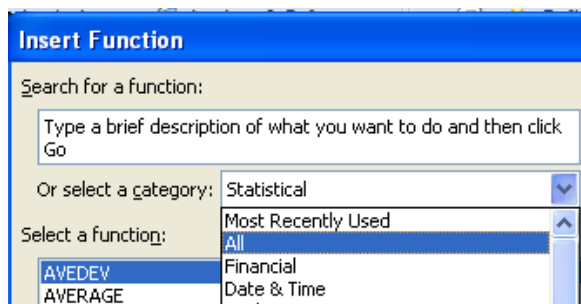


- Clicking on the **Insert Function** icon will display the **Insert Function** dialog box, which allows you to easily locate a particular function.

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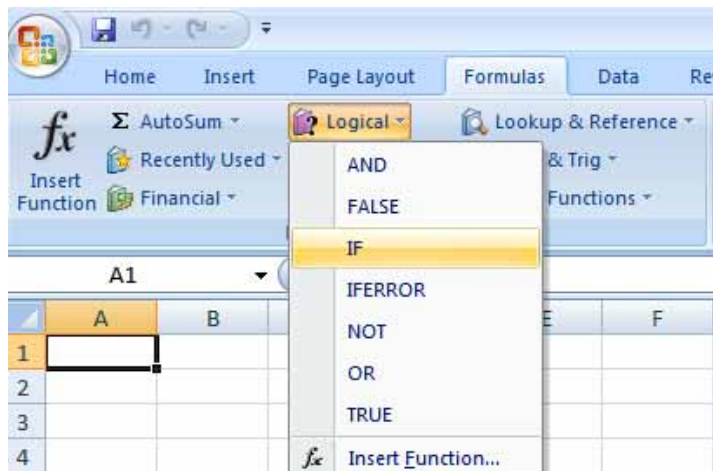
- To see a list of all available functions, click on the **down arrow** next to the **Select a category** section of the **Insert Function** dialog box, and select **All**.



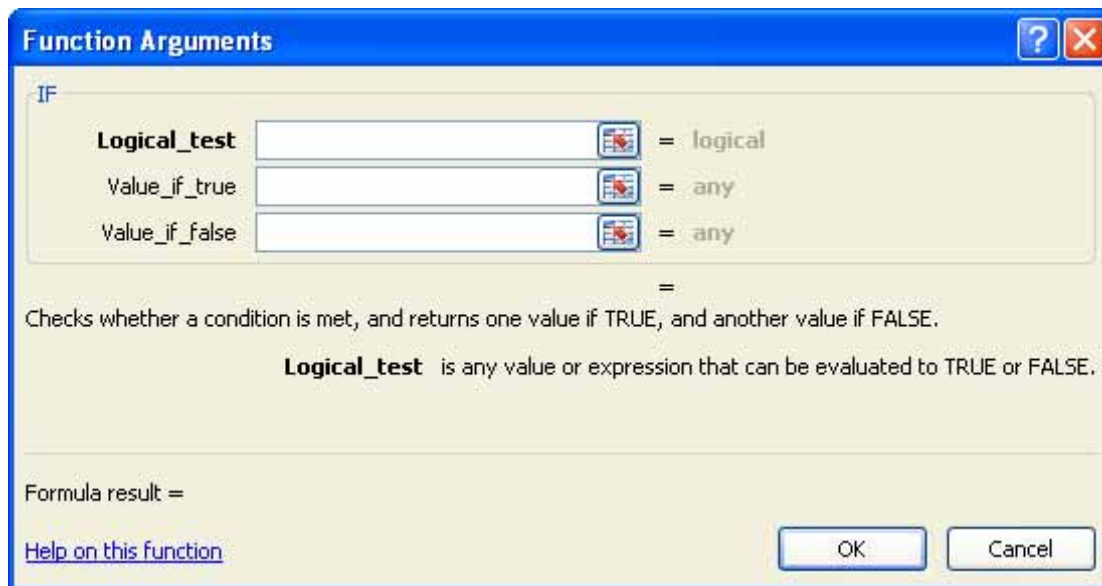
- You can then scroll down the entire list of functions.

## Getting help about using a particular function

- As an example we will get help about using the **IF** function. Click on the **Formula** tab and from within the **Function Library** click on the **Logical** button. From the drop down menu displayed select the **IF** command.

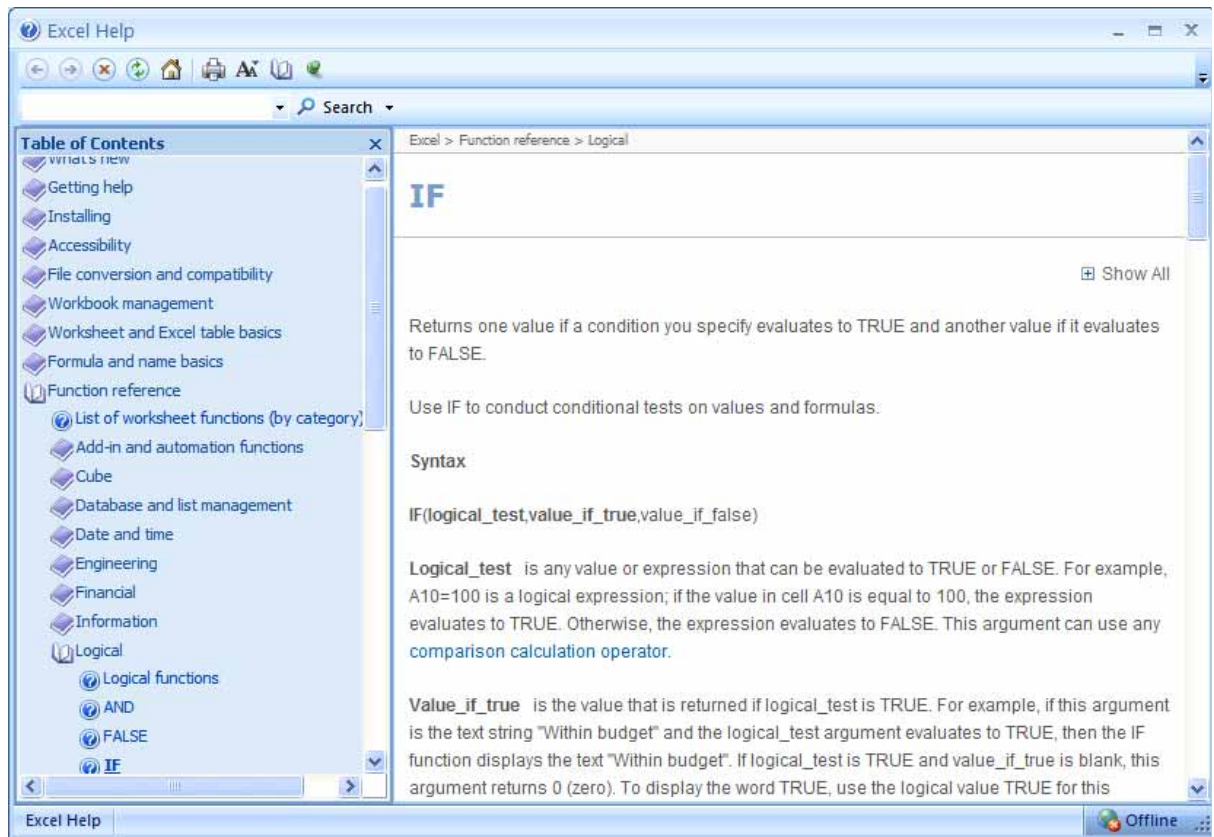


- This will display the **Functions Arguments** dialog box for the **IF** function.



- Click on **help on this function** (bottom-left within the dialog box). This will display help relevant to that function.

SAMPLE



- Take a quick look at the help available and then close the dialog box.

## Using date and time functions: TODAY

- Open a workbook called **Date and time functions**.
- Click on cell **B3**. To have Excel automatically insert the current date into a cell, select the cell and enter the following into the cell:

**=TODAY()**

- Press the **Enter** key and the current date will be displayed within the cell.

	A	B	C	D
1	<b>Please enter the correct functions below:</b>			
2				
3	The date today is:	<b>6/21/2007</b>		
4	The day is:			
5	The month is:			
6	The year is:			
7				
8				

---

## Using date and time functions: DAY

- Click on cell **B4** and enter the following function:

**=DAY(B3)**

- Press the **Enter** key. You will notice that the current day of the month is displayed:

	A	B	C	D
1	<b>Please enter the correct functions below:</b>			
2				
3	The date today is:	6/21/2007		
4	The day is:	21		
5	The month is:			
6	The year is:			

---

## Using date and time functions: MONTH

- Click on cell **B5** and enter the following function:

**=MONTH(B3)**

- Press the **Enter** key. You will notice that the current month is displayed:

	A	B	C	D
1	<b>Please enter the correct functions below:</b>			
2				
3	The date today is:	6/21/2007		
4	The day is:	21		
5	The month is:	6		
6	The year is:			
7				

---

## Using date and time functions: YEAR

- Click on cell **B6** and enter the following function:

**=YEAR(B3)**

- Press the **Enter** key. You will see that the current year will be displayed:

The screenshot shows an Excel spreadsheet with the following content:

	A	B	C	D
1	<b>Please enter the correct functions below:</b>			
2				
3	The date today is:	6/21/2007		
4	The day is:	21		
5	The month is:	6		
6	The year is:	2007		
7				

The formula bar at the top shows the active cell B6 containing the formula `=YEAR(B3)`.

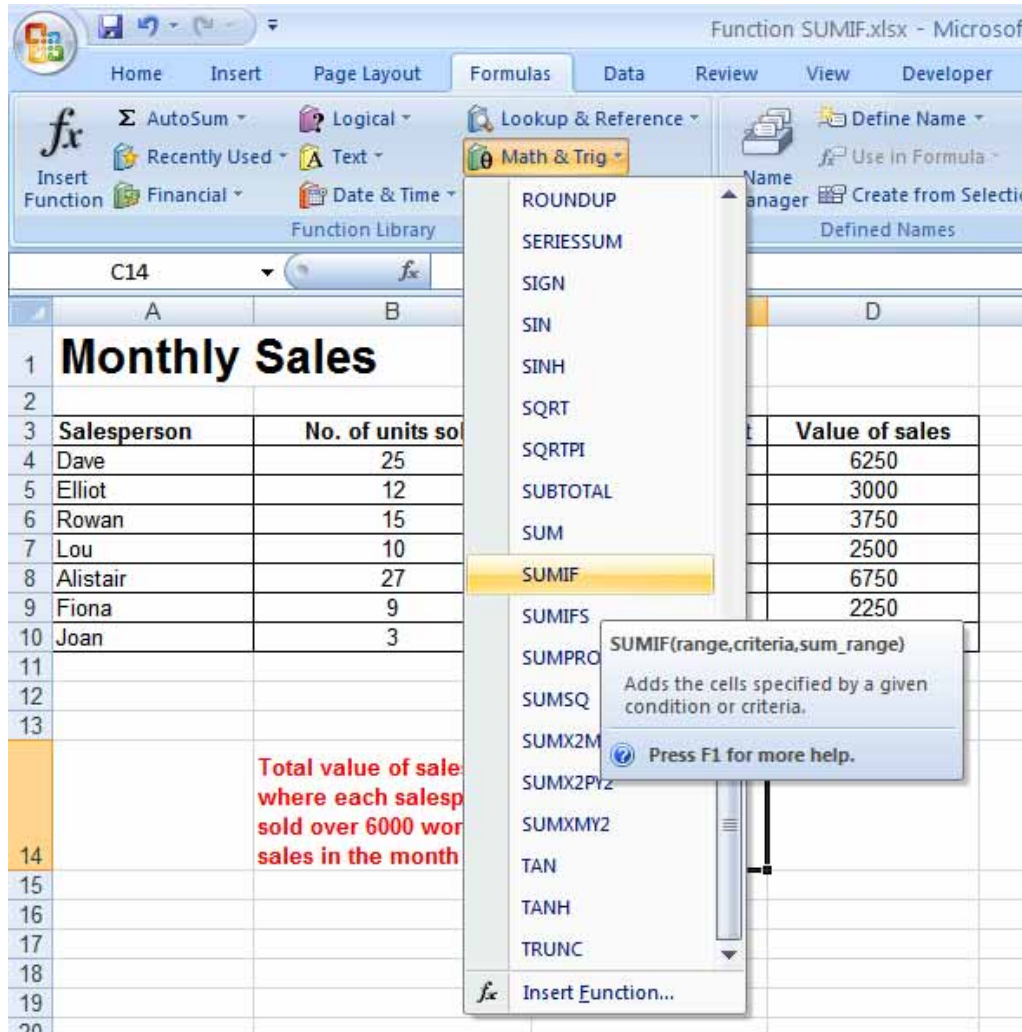
- Save your changes and close the workbook.

---

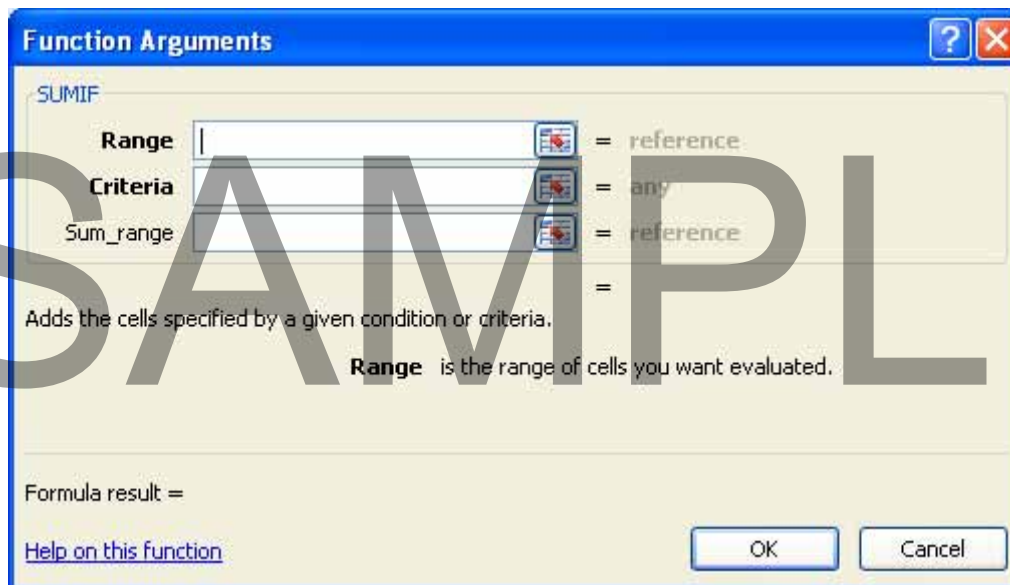
## Using mathematical functions: SUMIF

- Open a workbook called **Function SUMIF**.
- The **SUMIF** sums the values within a range that meet specified criteria. In this case, we want to see the total value of all sales, where the salesperson earned over **6000** a month.
- First, we would need to click on the cell in which we wish the result of our function to be displayed, in this case cell **C14**.
- Click on the **Formulas** tab and from within the **Function Library** group click on the **Math & Trig** button. From the drop down list displayed, click on the **SUMIF** function, as illustrated.

# SAMPLE

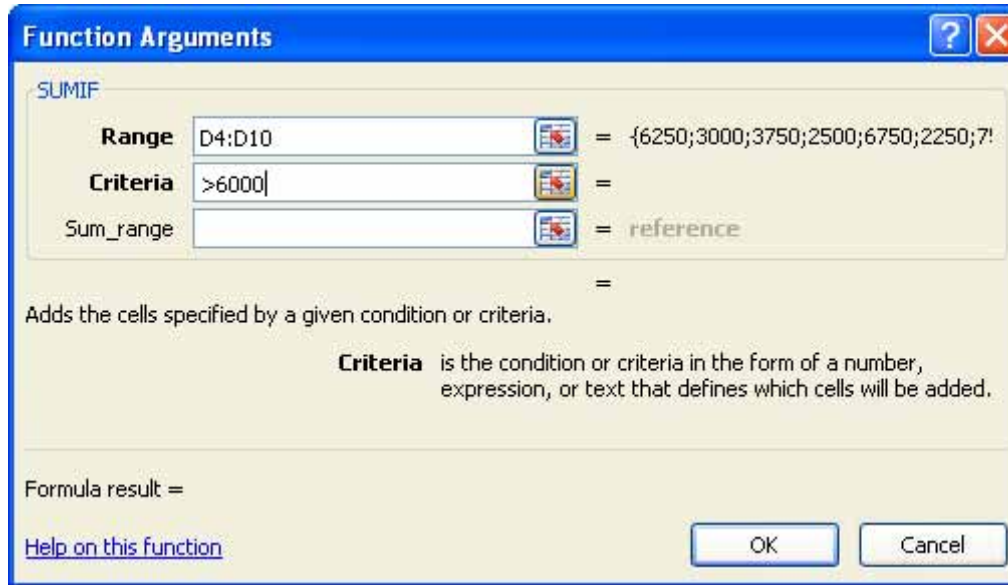


- The **Function Arguments** dialog box is displayed.



- To select the range you would use the mouse to select the cells **D4:D10**.

- In the **Criteria** section of the dialog box, we would enter **>6000**. The screen should now resemble the illustration:



- Clicking on the **OK** button would display the result within the active cell. You can see the actual function displayed in the Function Bar:

Total value of sales, where each salesperson sold over 6000 worth of sales in the month	13000
--	-------

- Save your changes and close the workbook.

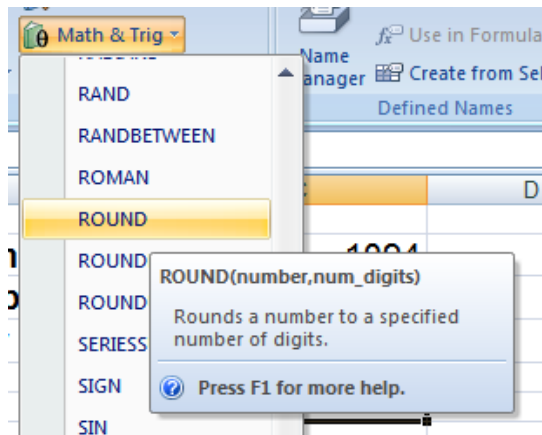
## Using mathematical functions: ROUND

- Open a workbook called **Function ROUND**.
- Click on cell **C4** that contains the formula **C2/C3**. As you can see, the result is displayed using a large number of decimal places. We are going to redo this formula and use the **Round** function to display the result with no decimal places:

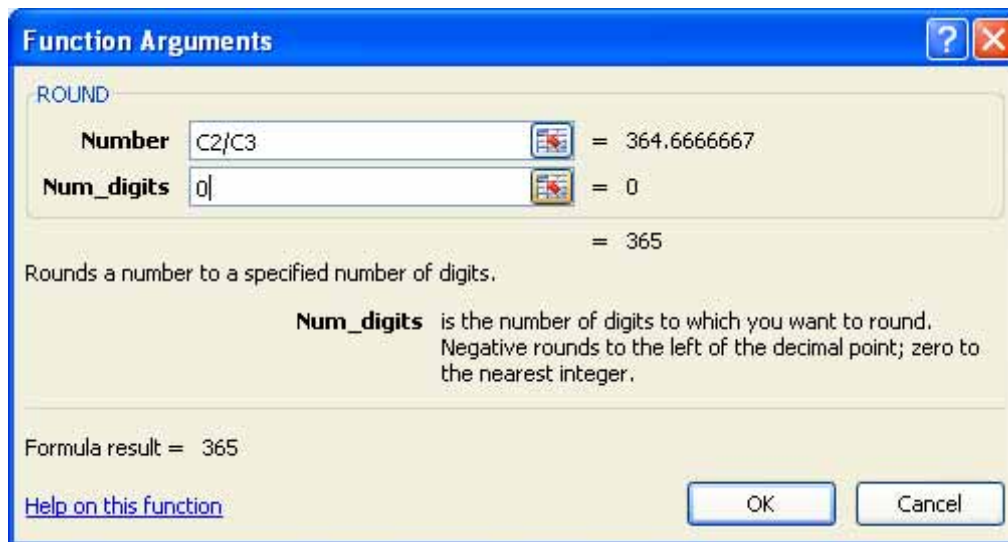
	A	B	C
1			
2		Total family income	1094
3		No of family members	3
4		Income per family member	364.6666667

- First, click on the cell **C4** and press the **Del** key to delete the cell contents.
- Click on the **Formulas** tab and from within the **Function Library** group click on the **Math & Trig** button. From the drop down list displayed, click on the **ROUND**

function, as illustrated.



- This will display the **Function Arguments** dialog box.



- In the **Number** section of the dialog box, enter the formula **C2/C3**.
- In the **Num\_digits** section of the dialog box, enter **0**.
- Click on the **OK** button and you will see the following:

	A	B	C
1			
2		<b>Total family income</b>	1094
3		<b>No of family members</b>	3
4		<b>Income per family member</b>	<b>365</b>
5			

- Save your changes and close the workbook.

## Using statistical functions: COUNT

- Open a workbook called **Function COUNT**. This sheet contains examination results and grades.
- Click on cell **C9**.
- Enter the following function to count each variety of letter-grade:

**=COUNT(C5:C8)**

- The result will appear in cell C9. Use the normal drag and drop techniques to copy this function to cells **D9** and **E9**. The results should be as illustrated:

	A	B	C	D	E
1					
2					
3					
4			Grade A	Grade B	Grade C
5		Mathematics	1		
6		History		1	
7		Geography	1		
8		Economics			1
9		Totals	2	1	1

- Save your changes and close the workbook.

## Using statistical functions: COUNTA

- Open a workbook called **Function COUNTA**. This sheet contains examination results and grades.
- Click on cell **C9** and enter the following function to count each of the three letter-grade types:

**=COUNTA(C5:C8)**

- The result will appear in cell C9. Use the normal drag and drop techniques to copy this function to cells **D9** and **E9**. The results should be as illustrated:

	A	B	C	D	E
1					
2					
3					
4			Grade A	Grade B	Grade C
5		Mathematics	x		
6		History		x	
7		Geography	x		
8		Economics			x
9		Totals	2		

- You can drag this function across the range **D9:E9** and the table will look like this.

	A	B	C	D	E
1					
2					
3					
4			Grade A	Grade B	Grade C
5		Mathematics	x		
6		History		x	
7		Geography	x		
8		Economics			x
9		Totals	2	1	1
10					

- Save your changes and close the workbook

## Using statistical functions: COUNTIF

- Open a workbook called **Function COUNTIF**. This sheet contains examination results and grades.
- Click on cell **C9** and enter the following function to count the number of "A's" each student earned:

**=COUNTIF(C5:C8,"A")**

- Use the normal drag and drop techniques to copy this function to cells **D9** and **E9**. The results should be as illustrated:

	A	B	C	D	E
1					
2					
3					
4			Dayo	Rowan	Chita
5		Mathematics	A	B	B
6		History	B	B	C
7		Geography	B	C	B
8		Economics	A	B	A
9		Total no. of A grades	2	0	1
10					

- Save your changes and close the workbook.

## Using text functions: PROPER

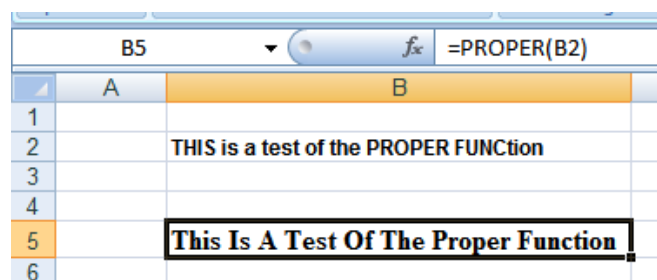
- Open a workbook called **Function PROPER**. This worksheet contains the following text in cell **B2**:

**THIS is a test of the PROPER FUNCTION**

- Click on cell **B5** and enter the following function:

**=PROPER(B2)**

- The screen should resemble the illustration.



- Save your changes and close the workbook.

**Using text functions: UPPER**

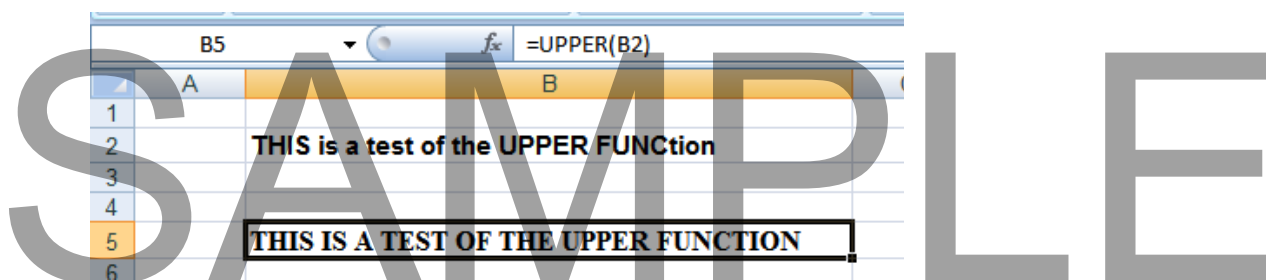
- Open a workbook called **Function UPPER**. This worksheet contains the following text in cell B2:

**THIS is a test of the UPPER FUNCTION**

- To convert the text into upper-case lettering, click on cell **B5** and enter the following function:

**=UPPER(B2)**

- When you press the **Enter** key, you will see the text as illustrated:



- Save your changes and close the workbook.

**Using text functions: LOWER**

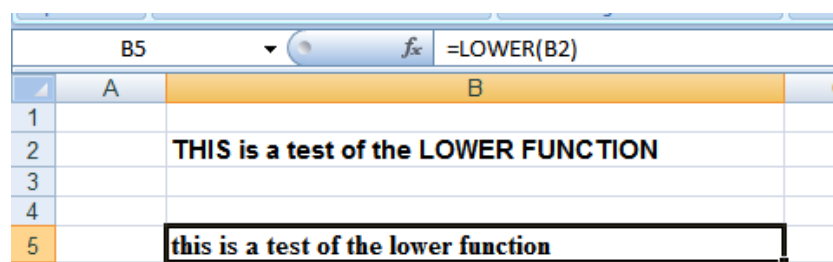
- Open a workbook called **Function LOWER**. This worksheet contains the following text in cell B2:

## THIS is a test of the LOWER FUNCTION

- To convert the text to lower-case lettering, click on cell **B5** and enter the following function:

**=LOWER(B2)**

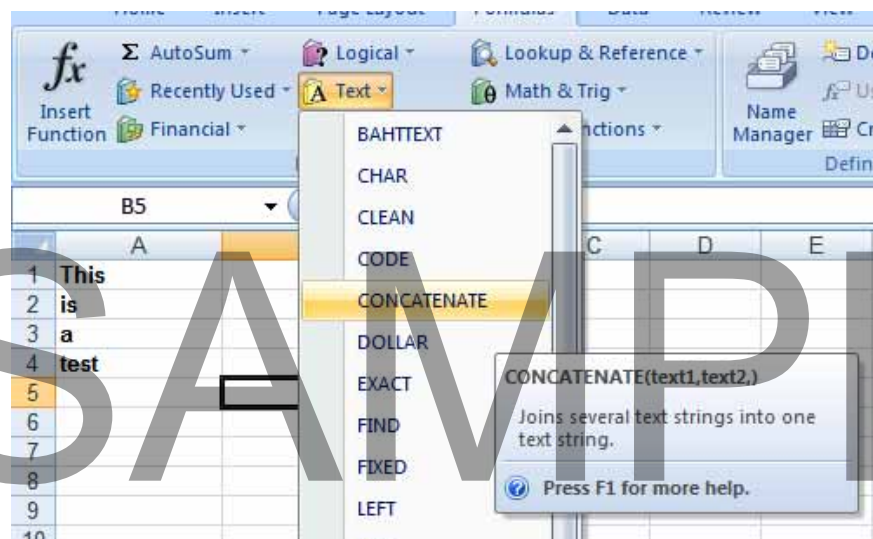
- When you press the **Enter** key, you will see the text as illustrated:



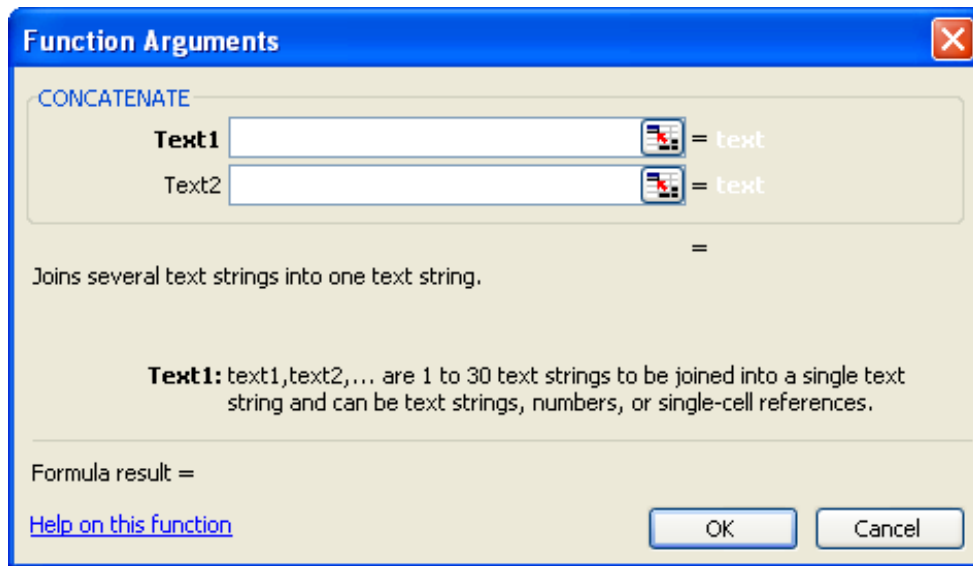
- Save your changes and close the workbook.

## Using text functions: CONCATENATE

- Open a workbook called **Function CONCATENATE**.
- Click on cell **B5**.
- Click on the **Formulas** tab and from within the **Function Library** group click on the **Text** button. From the drop down list displayed, click on the **CONCATENATE** function, as illustrated.

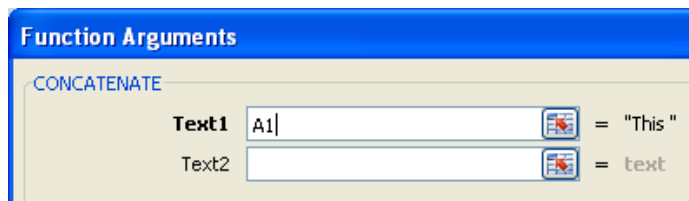


- The **Function Arguments** dialog box is displayed.



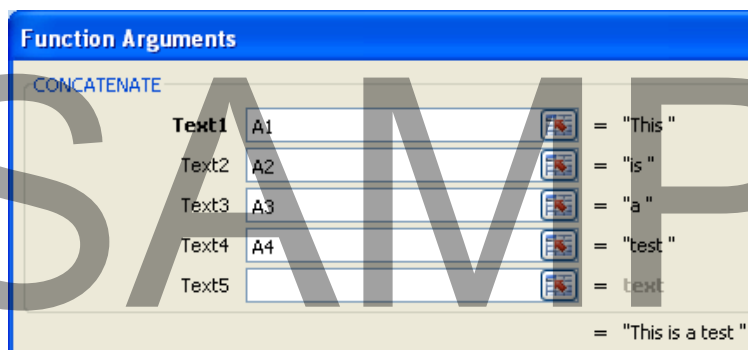
- Click within the **Text1** section of the dialog box and then click on cell **A1**.

You will see the following.



- Click within the **Text2** section of the dialog box and then click on cell **A2**.
- Click within the **Text3** section of the dialog box and then click on cell **A3**.
- Click within the **Text4** section of the dialog box and then click on cell **A4**.

Your dialog box should now look like this.



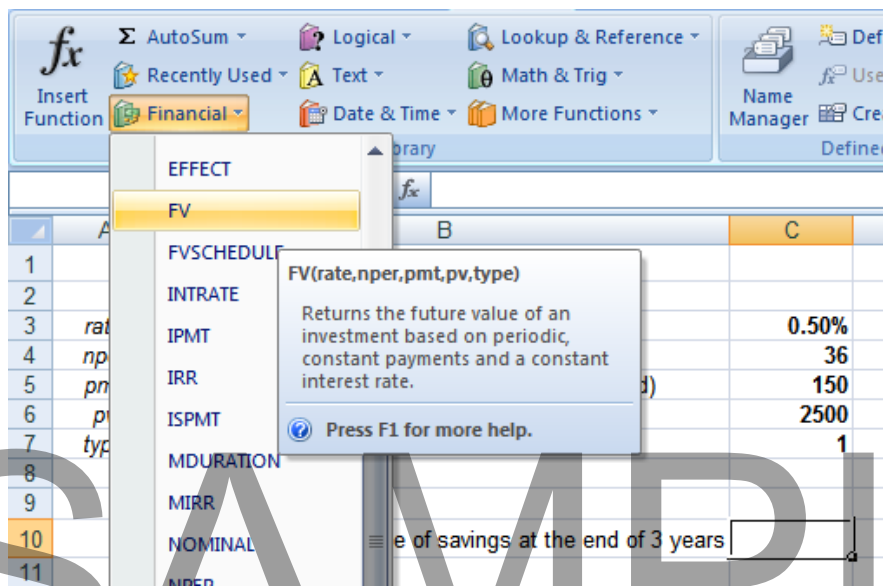
- Click on the **OK** button, and you will see the result as illustrated:

	A	B	C	D	E
1	This				
2	is				
3	a				
4	test				
5		This is a test			
6					

- Save your changes and close the workbook.

## Using financial functions: FV

- Open a workbook called **Function FV**. This contains data relating to the following scenario. Let's say we have a lump sum of 2500 and we want to invest this in a bank that is paying out 6% interest. We will invest a further 150 monthly. We want to know how much the account will be worth after three years. We can enter the following information into a worksheet.
- Click on cell **C10**.
- Click on the **Formulas** tab and from within the **Function Library** group click on the **Financial** button. From the drop down list displayed, click on the **FV** function, as illustrated.



- The **Function Arguments** dialog box will be displayed.

**Function Arguments**

FV

<b>Rate</b>	<input type="text"/>	= number
<b>Nper</b>	<input type="text"/>	= number
<b>Pmt</b>	<input type="text"/>	= number
<b>Pv</b>	<input type="text"/>	= number
<b>Type</b>	<input type="text"/>	= number

=

Returns the future value of 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

- Click within the **Rate** section of the dialog box and then click on cell **C3**.
- Click within the **Nper** section of the dialog box and then click on cell **C4**.
- Click within the **Pmt** section of the dialog box and then click on cell **C5**. Then prefix the value with a **minus** sign (-).
- Click within the **Pv** section of the dialog box and then click on cell **C6**. Then prefix the value with a **minus** sign (-).
- Click within the **Type** section of the dialog box and then click on cell **C7**.

**Function Arguments**

FV

<b>Rate</b>	C3	= 0.005
<b>Nper</b>	C4	= 36
<b>Pmt</b>	-C5	= -150
<b>Pv</b>	-C6	= -2500
<b>Type</b>	C7	= 1

= 8921.619135

Returns the future value of an investment based on periodic, constant payments and a constant interest rate.

**Type** is a value representing the timing of payment: payment at the beginning of the period = 1; payment at the end of the period = 0 or omitted.

Formula result = 8921.62

[Help on this function](#)

OK Cancel

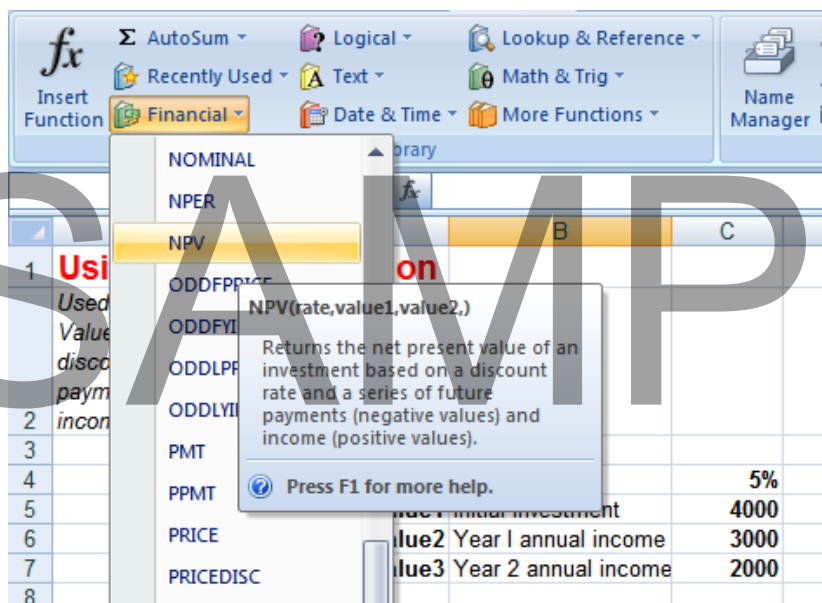
- When you click on the **OK** button you will see the result as illustrated:

C10		fx =FV(C3,C4,-C5,-C6,C7)	
	A	B	C
1		<b>Using the FV Function</b>	
2			
3	<i>rate</i>	Interest rate per monthly period	0.50%
4	<i>nper</i>	Total number of payment periods (in months)	36
5	<i>pmt</i>	Payment (fixed for each monthly payment period)	150
6	<i>pv</i>	Value of initial lump sum invested	2500
7	<i>type</i>	Payment is due at the end of each month	1
8			
9			
10		Total value of savings at the end of 3 years	<b>8921.62</b>
11			

- Save your changes and close the workbook.

## Using financial functions: NPV

- Open a workbook called **Function NPV**. This contains data relating to the following scenario. We are going to make an investment that will pay 4000 up front and in the following two years will provide an annual income of 3000 and 2000. We will assume an annual discount rate of 5% percent.
- Click on cell **B11**.
- Click on the **Formulas** tab and from within the **Function Library** group click on the **Financial** button. From the drop down list displayed, click on the **NPV** function, as illustrated.



- The **Function Arguments** dialog box will be displayed

**Function Arguments**

NPV

**Rate**  = number

**Value1**  = number

Value2  = number

=

Returns the net present value of an investment based on a discount rate and a series of future payments (negative values) and income (positive values).

**Rate:** is the rate of discount over the length of one period.

Formula result =

[Help on this function](#)

Click on the **Rate** section of the dialog box, and then click on cell **C4**.

- Click on the **Value 1** section of the dialog box, and then click on cell **C5**, as this is an upfront, initial payout, prefix this amount with a **minus (-) sign**.
- Click on the **Value 2** section of the dialog box, and then click on cell **C6**.
- Click on the **Value 3** section of the dialog box, and then click on cell **C7**:

**Function Arguments**

NPV

**Rate** C4 = 0.05

**Value1** -C5 = -4000

Value2 C6 = 3000

Value3 C7 = 2000

Value4  = number

= 639.2398229

Returns the net present value of an investment based on a discount rate and a series of future payments (negative values) and income (positive values).

**Value1:** value1,value2,... are 1 to 254 payments and income, equally spaced in time and occurring at the end of each period.

Formula result = 639.24

[Help on this function](#)

- When you click on the **OK** the result should be as illustrated:

B11		fx =NPV(C4,-C5,C6,C7)		
	A	B	C	D
1	<b>Using the NPV Function</b>			
2	<i>Used to calculate the Net Present Value of an investment, using a discount rate and a series of future payments (negative values), plus income (positive values).</i>			
3				
4		Rate	Interest rate	5%
5		Value1	Initial investment	4000
6		Value2	Year 1 annual income	3000
7		Value3	Year 2 annual income	2000
8				
9				
10				
11	<b>Net Present Value</b>		<b>639.24</b>	
12				

**NOTE:** If you do not get a result as below, it may be because you forgot the **minus** symbol in front of **C5**.

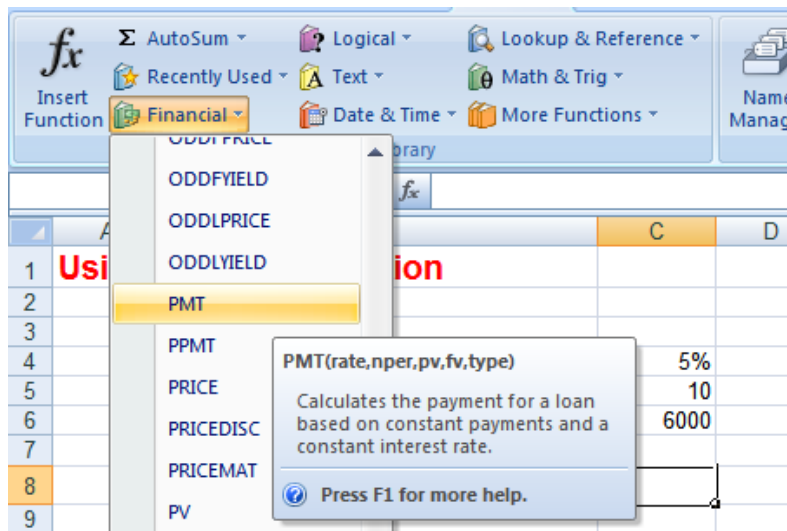
<b>Net Present Value</b>	<b>8,258.29</b>
--------------------------	-----------------

- Save your changes and close the workbook.

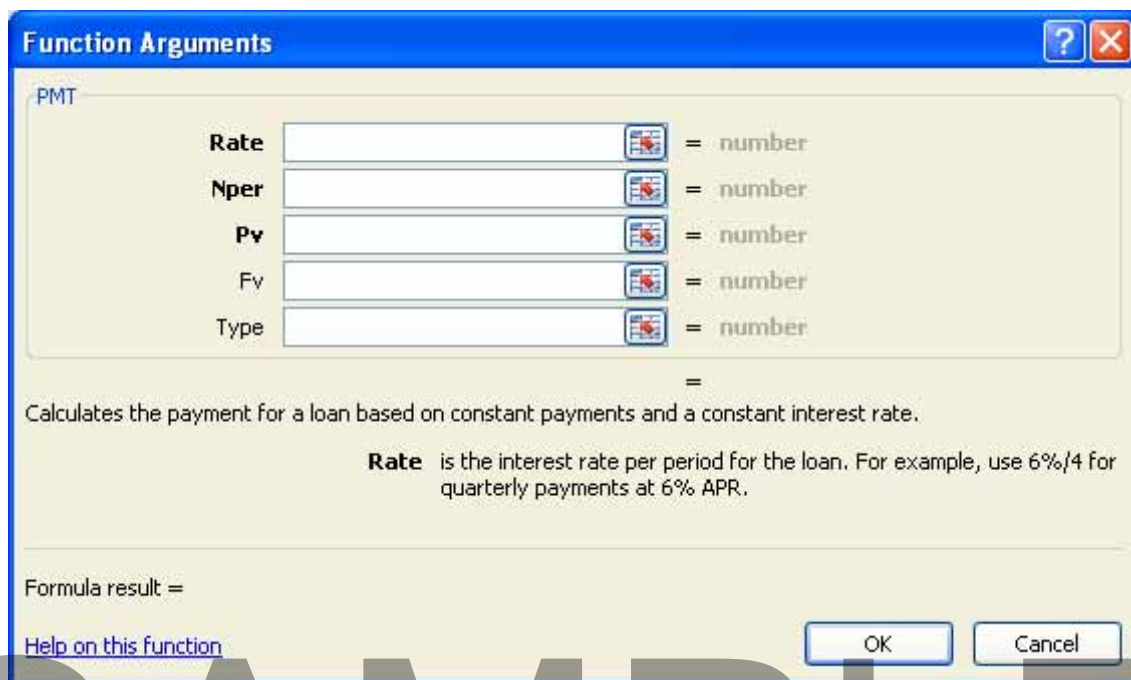
## Using financial functions: PMT

- Open a workbook called **Function PMT**. This sheet contains data for the following scenario. We wish to calculate the monthly repayments for a loan of 6,000, spread over 10 months, assuming an annual rate of 5%.
- Click on cell **C8**.
- Click on the **Formulas** tab and from within the **Function Library** group click on the **Financial** button. From the drop down list displayed, click on the **PMT** function, as illustrated.

SAMPLE



- The **Function Arguments** dialog box will be displayed.



- Click within the **Rate** section of the dialog box and enter **C4/12**.
- Click within the **Nper** section of the dialog box and then click on cell **C5**.
- Click within the **Pv** section of the dialog box and then click on cell **C6**:

**Function Arguments**

PMT

<b>Rate</b>	C4/12	= 0.004166667
<b>Nper</b>	C5	= 10
<b>Pv</b>	C6	= 6000
<b>Fv</b>		= number
<b>Type</b>		= number

= -613.8357565

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 = -613.84

[Help on this function](#)

OK Cancel

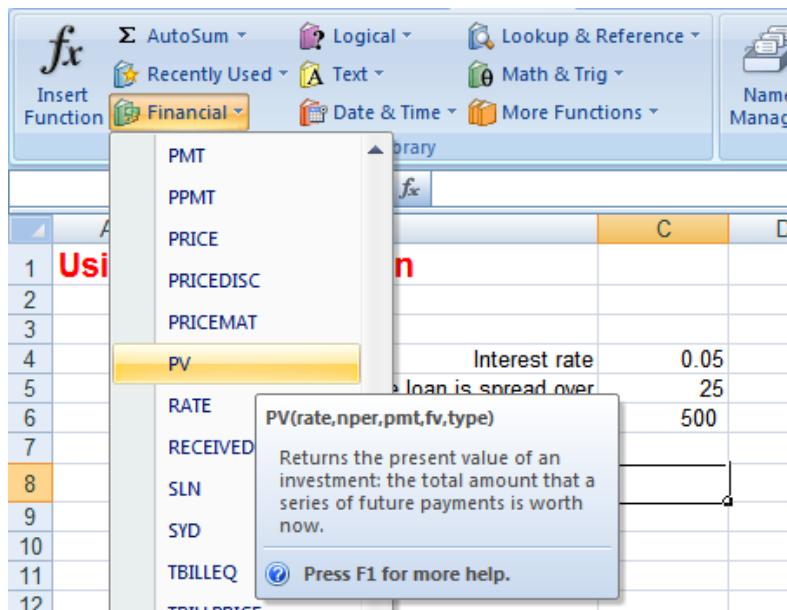
- When you click on the **OK** button the result will be as illustrated:

	A	B	C	D
1	<b>Using the PMT Function</b>			
2				
3				
4		Interest rate	5%	
5		No of months that the loan is spread over	10	
6		Total loan amount	6000	
7				
8		<b>PMT</b>	-613.84	

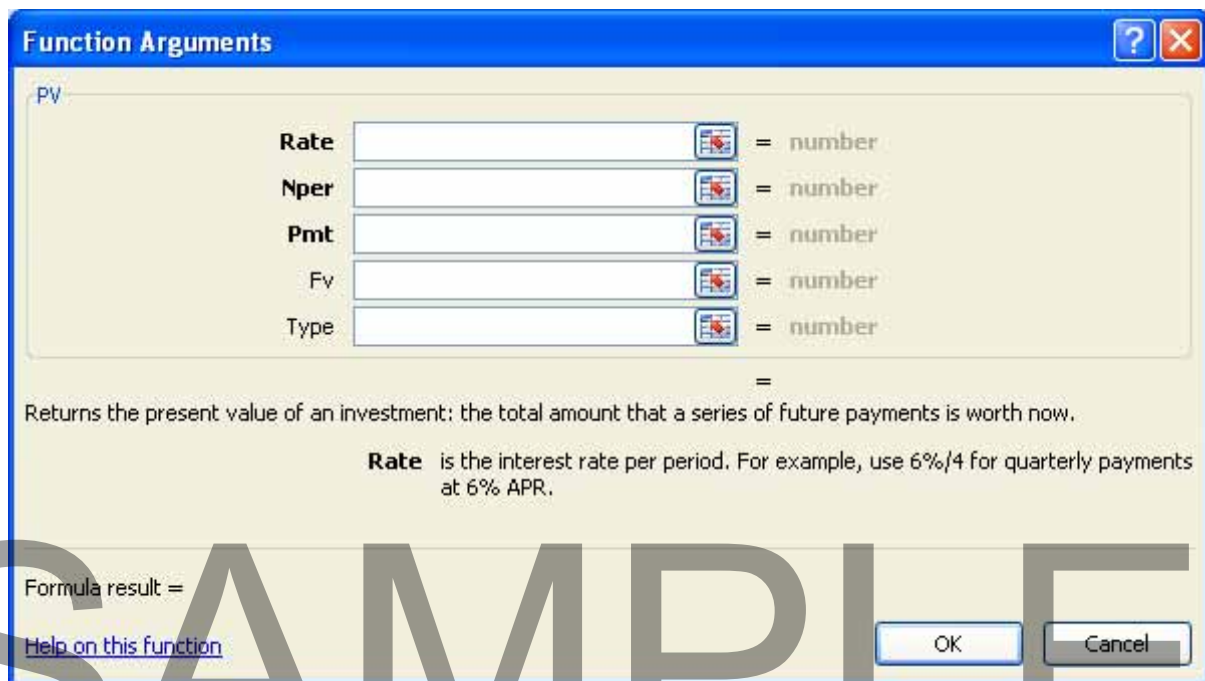
- Save your changes and close the workbook.

## Using financial functions: PV

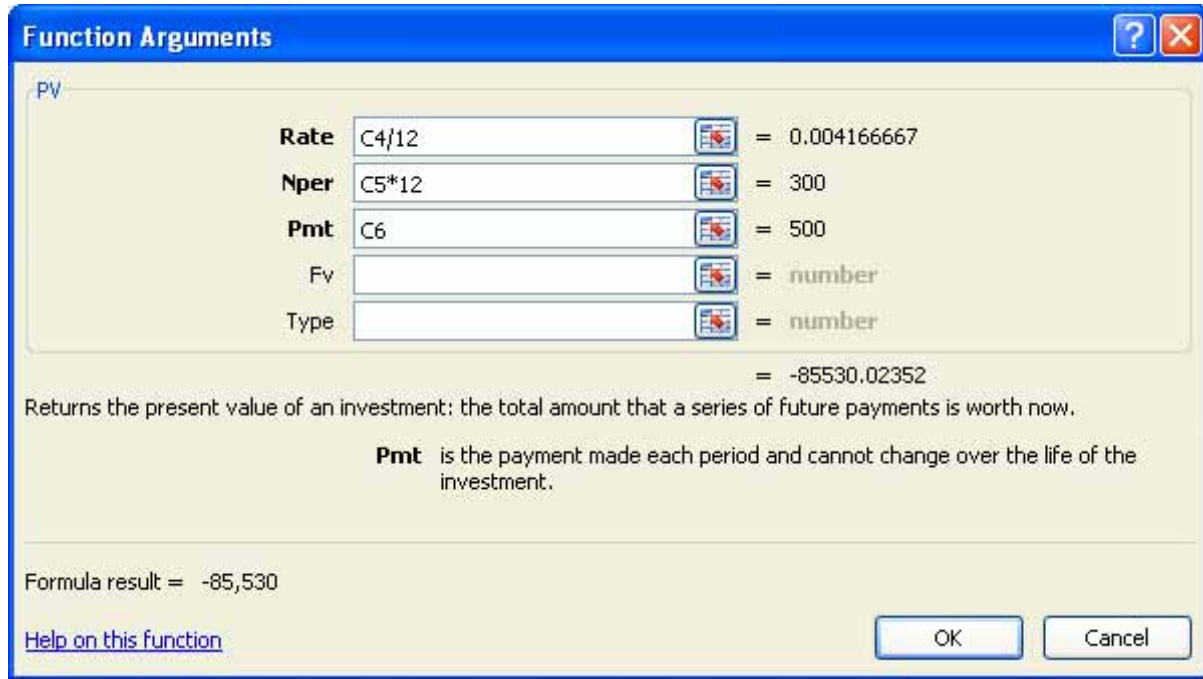
- Open a workbook called **Function PV**. In this example, we are considering purchasing an insurance annuity that will payout 500 at the end of every month for the next 25 years. We will assume a rate of 5% (i.e. x0.05).
- Click on cell **C8**.
- Click on the **Formulas** tab and from within the **Function Library** group click on the **Financial** button. From the drop down list displayed, click on the **PV** function, as illustrated.



- The **Function Arguments** dialog box will be displayed:



- Click in the **Rate** section of the dialog box and enter **C4/12** (to calculate the rate on a monthly basis).
- Click in the **Nper** section of the dialog box and enter **C5\*12** (to account for the length of the term in months).
- Click in the **Pmt** section of the dialog box and then click on cell **C6**:



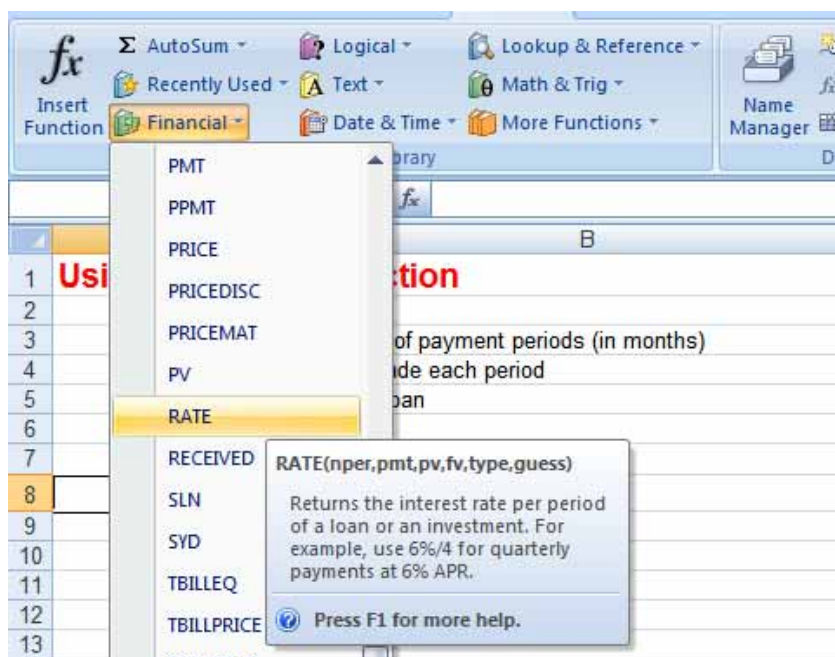
- When you click on the **OK** button, you will see the following:

	A	B	C
1	<b>Using the PV Function</b>		
2			
3			
4		Interest rate	0.05
5		No of years that the loan is spread over	25
6		Amount paid at the end of each month	500
7			
8		<b>PV</b>	<b>-85,530</b>
9			

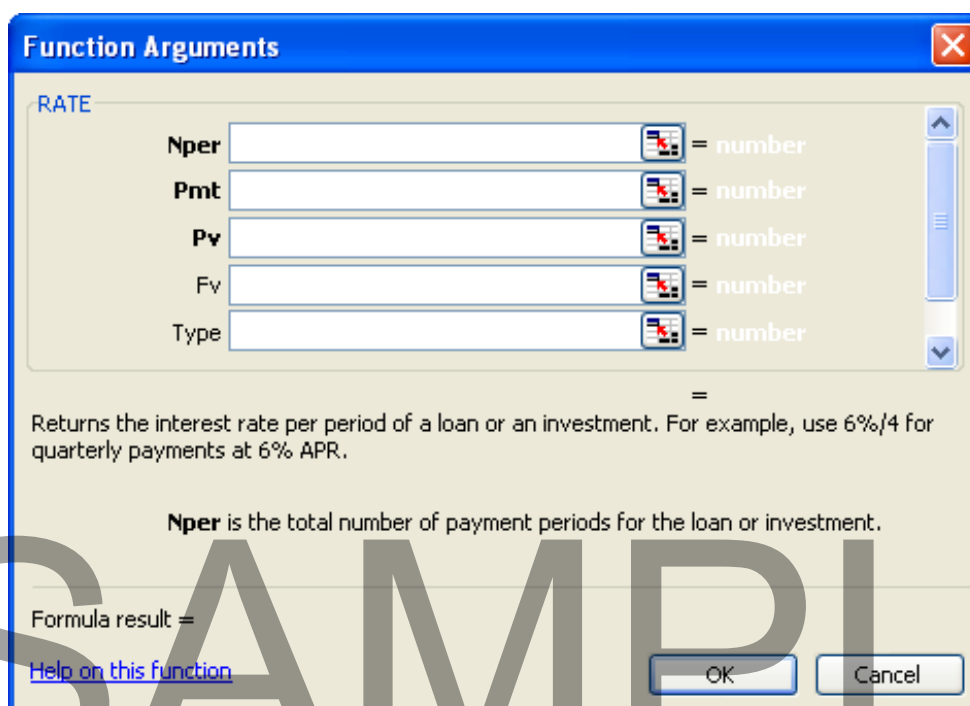
- Save your changes and close the workbook.

## Using financial functions: RATE

- Open a workbook called **Function RATE**. In this example, we will calculate the rate for a loan of 7,000, spread over 4 years (48 months), with a monthly payment of 150.
- Click on cell **A8**.
- Click on the **Formulas** tab and from within the **Function Library** group click on the **Financial** button. From the drop down list displayed, click on the **RATE** function, as illustrated.



- The **Function Arguments** dialog box will be displayed.



- Click in the **Nper** section of the dialog box and then click on cell **A3**.
- Click in the **Pmt** section of the dialog box and then click on cell **A4**. Then prefix the value with a **minus** sign (-).
- Click in the **Pv** section of the dialog box and then click on cell **A5**.

**Function Arguments**

RATE

**Nper** A3 = 48

**Pmt** -A4 = -150

**Pv** A5 = 7000

**Fv** = number

**Type** = number

= 0,001155724

Returns the interest rate per period of a loan or an investment. For example, use 6%/4 for quarterly payments at 6% APR.

**Pmt** is the payment made each period and cannot change over the life of the loan or investment.

Formula result = 0.12%

[Help on this function](#)

OK Cancel

- Click on the **OK** button, you will see the following:

	A8		fx	=RATE(A3,-A4,A5)
	A		B	
1	<b>Using the RATE Function</b>			
2				
3	48	Total number of payment periods (in months)		
4	150	Payments made each period		
5	7,000	Value of the loan		
6				
7				
8	0.12%	Rate		
9				
10				

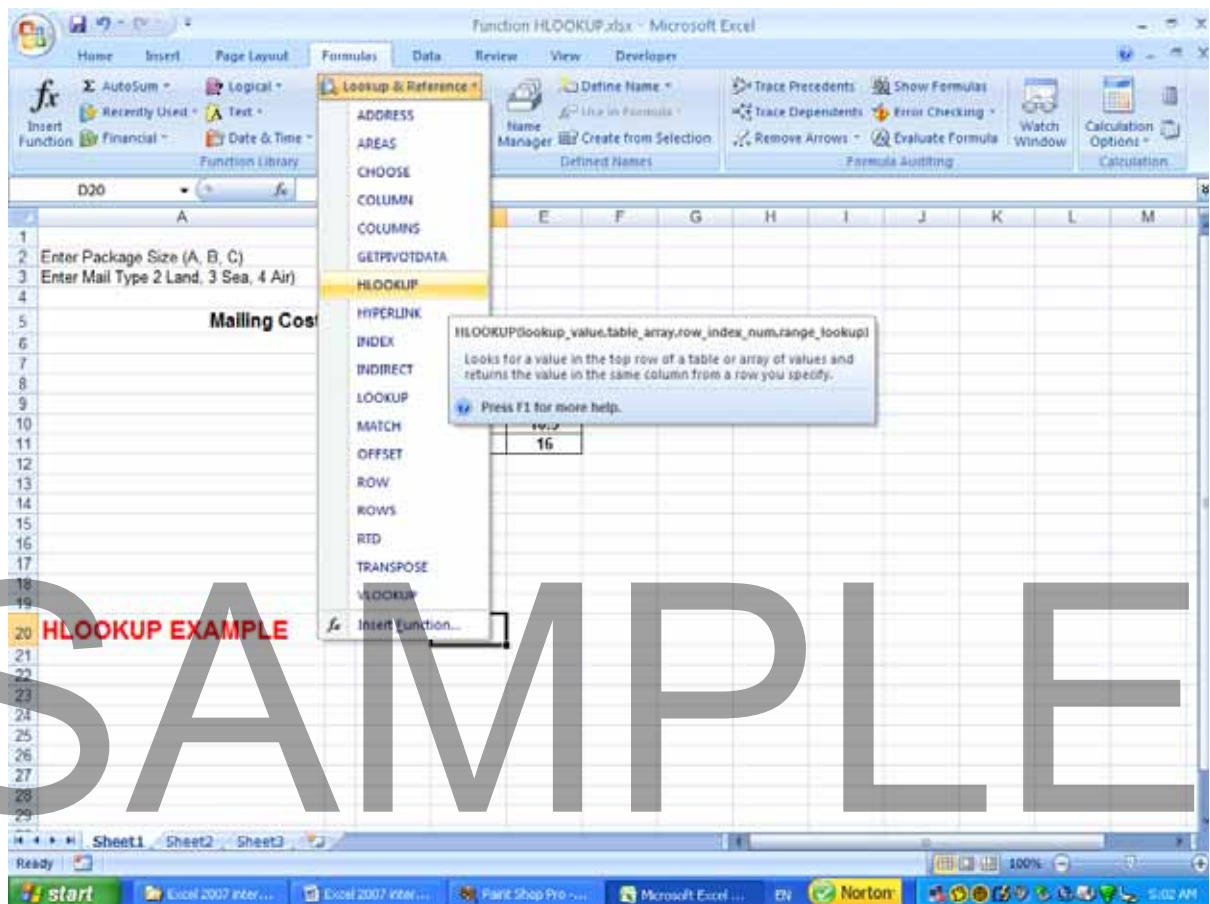
- Save your changes and close the workbook.

## Using lookup and reference functions: HLOOKUP

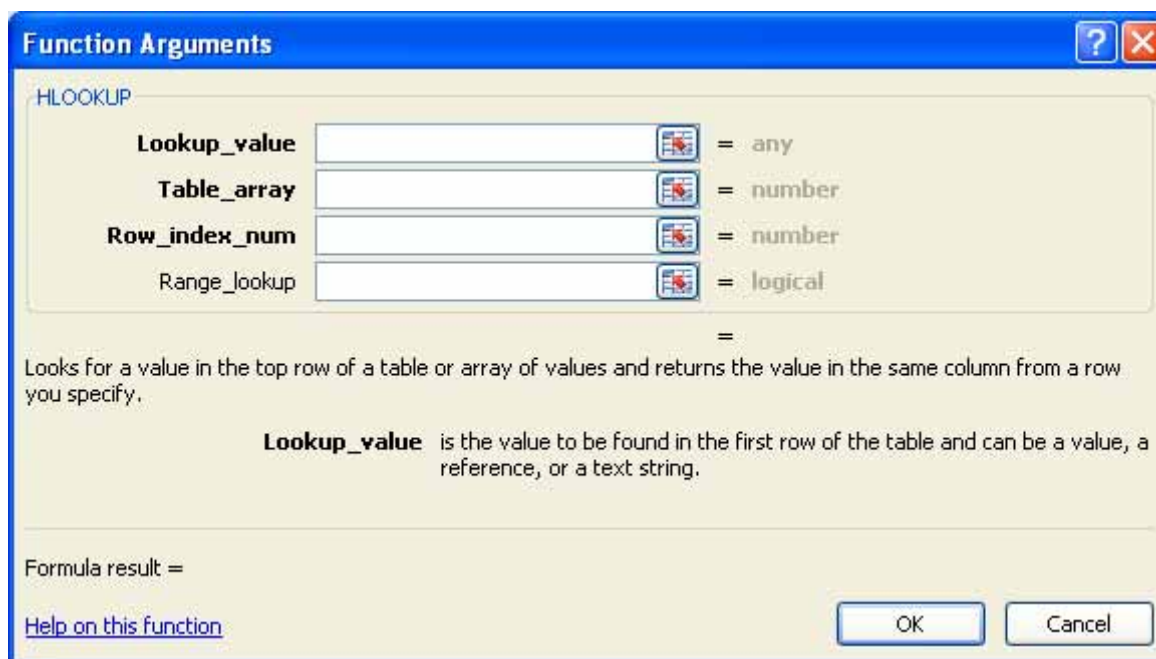
- Open a workbook called **Function HLOOKUP**. This example shows how you can use two values to lookup a value in a table. The function looks for the package type in row 1 of the table and then returns the mailing cost in the appropriate mailing type row:

	A	B	C	D	E
1					
2	Enter Package Size (A, B, C)				
3	Enter Mail Type 2 Land, 3 Sea, 4 Air				
4					
5	<b>Mailing Cost</b>				
6					
7					
8		1	a	b	c
9		2	3.5	4	6.66
10		3	5.53	6.75	10.5
11		4	7.77	10.33	16
12					

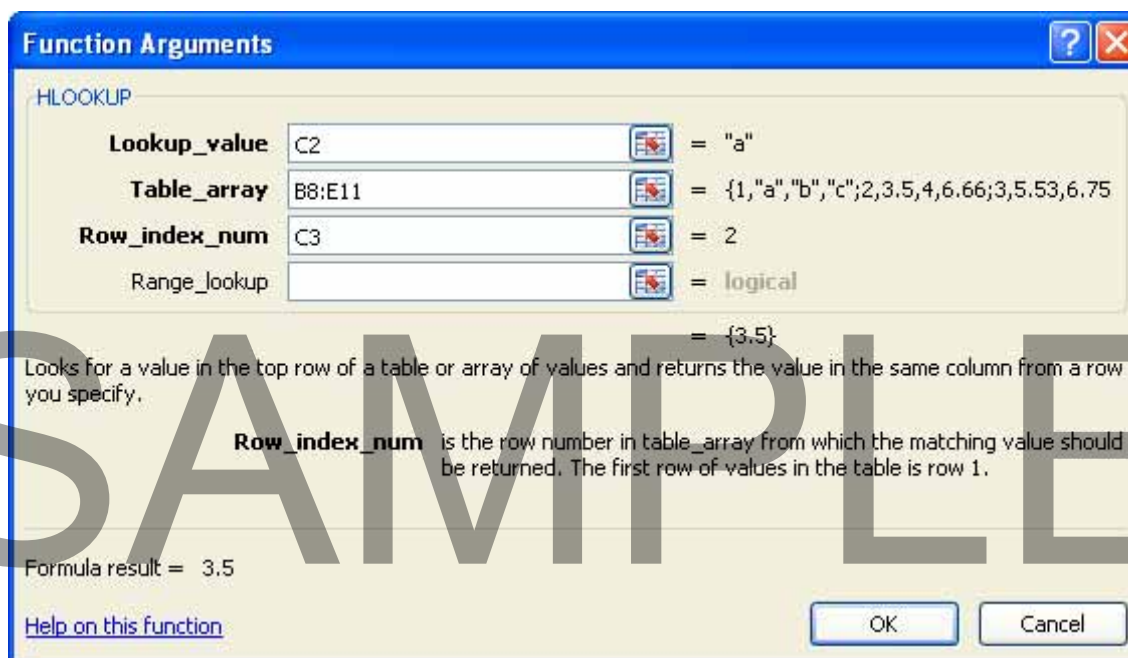
- Click on cell **C5**.
- Click on the **Formulas** tab and from within the **Function Library** group click on the **Lookup & Reference** button. From the drop down list displayed, click on the **HLOOKUP** function, as illustrated.



- The **Function Arguments** dialog box will be displayed:



- Click on the **Lookup\_value** section of the dialog box, then click on cell **C2**.
- Click on the **Table\_array** section of the dialog box, and then select the cell range **B8:E11**.
- Click on the **Row\_index\_num** section of the dialog box, and then click on cell **C3**:



- When you click on the **OK** button, you will see the following. Notice the formula in cell **C5**:

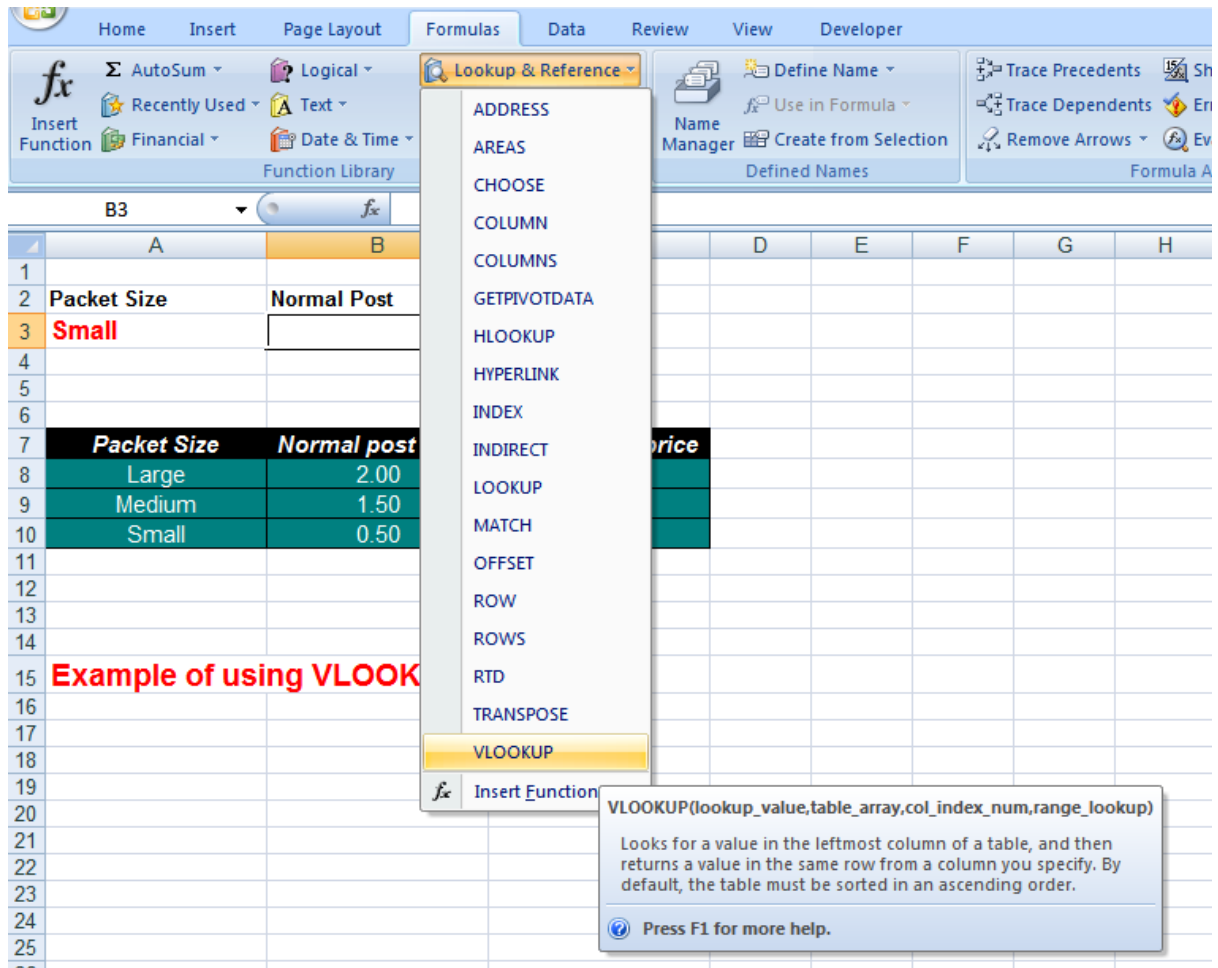
	A	B	C	D	E
1					
2	Enter Package Size (A, B, C)		a		
3	Enter Mail Type 2 Land, 3 Sea, 4 Air)		2		
4					
5	<b>Mailing Cost</b>		3.5		
6					
7					
8		1	a	b	c
9		2	3.5	4	6.66
10		3	5.53	6.75	10.5
11		4	7.77	10.33	16
12					

- Try entering other values in cell C2 (i.e. **b** or **c**).
- Try entering other values in cell C3 (i.e. **1**, **3** or **4**).
- Save your changes and close the workbook.

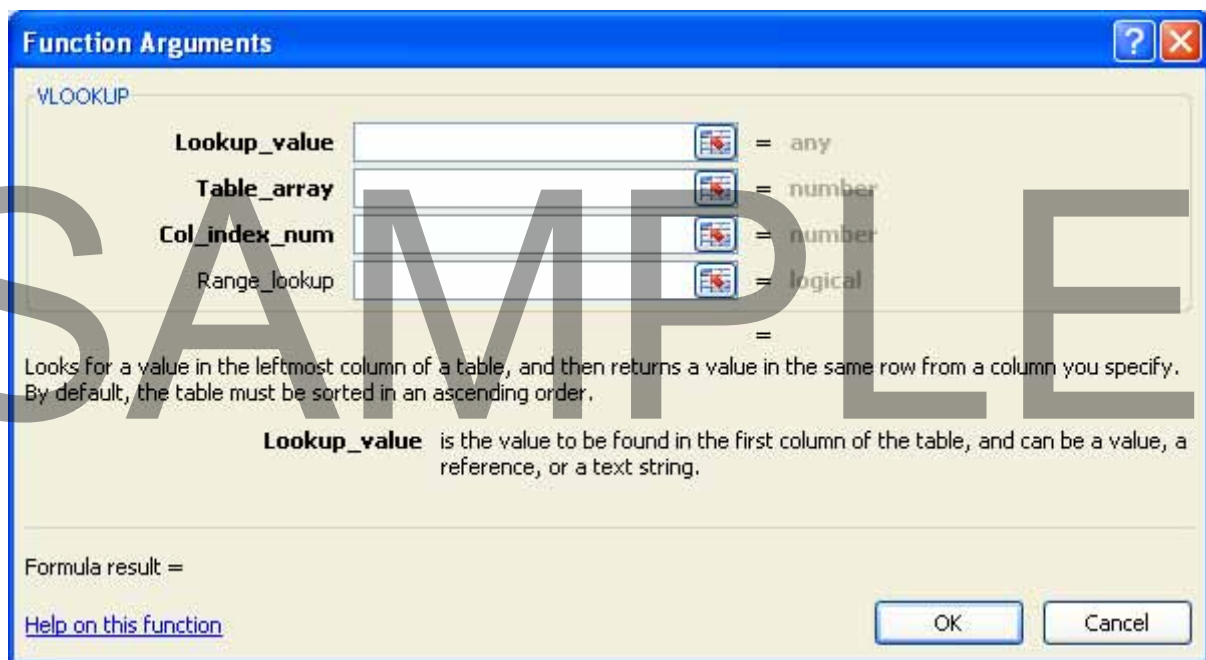
## Using lookup and reference functions: VLOOKUP

- Open a workbook called **Function VLOOKUP**.
- Click on cell **B3**.
- Click on the **Formulas** tab and from within the **Function Library** group click on the **Lookup & Reference** button. From the drop down list displayed, click on the **VLOOKUP** function, as illustrated.

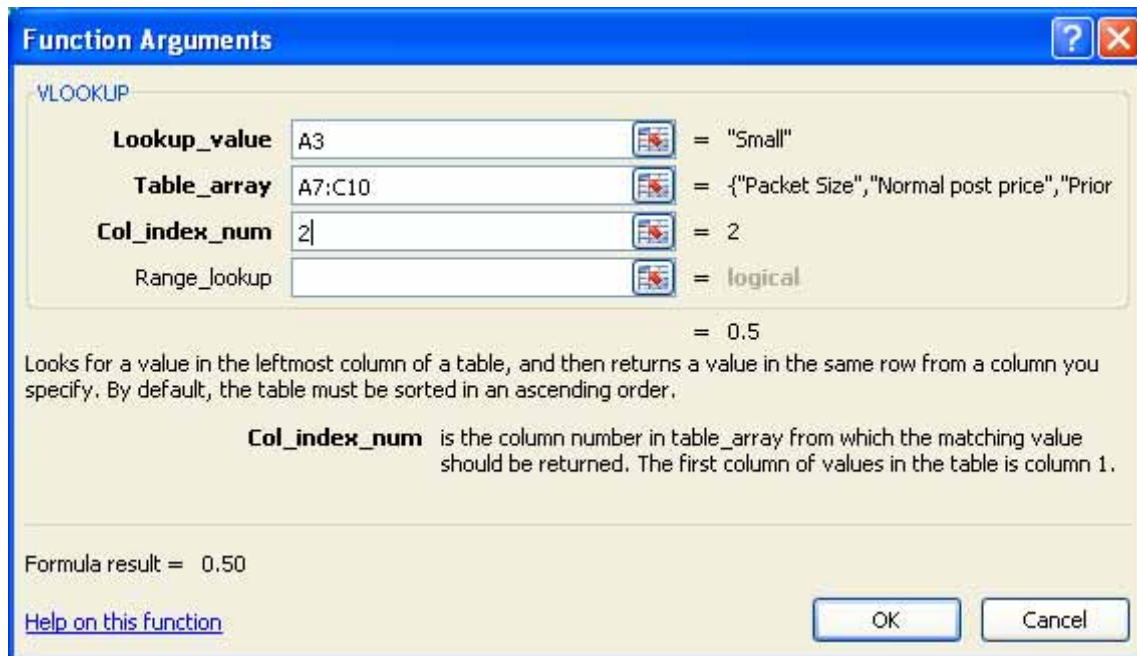
# SAMPLE



- The **Function Arguments** dialog box will be displayed:



- Click in the **Lookup\_value** section of the dialog box and then click on cell **A3**.
- Click in the **Table\_array** section of the dialog box and then select the cell range **A7:C10**.
- Click in the **Col\_index\_num** section of the dialog box and then enter **2**:



- Click on the **OK** button and you will see the following:

	A	B	C	D
1				
2	Packet Size	Normal Post	Priority Post	
3	Small	0.50		
4				
5				
6				
7	<b>Packet Size</b>	<b>Normal post price</b>	<b>Priority Post price</b>	
8	Large	2.00	4.00	
9	Medium	1.50	3.00	
10	Small	0.50	1.00	
11				

- Click on cell **C3** and enter the following:

**=VLOOKUP(A3,A7:C10,3)**

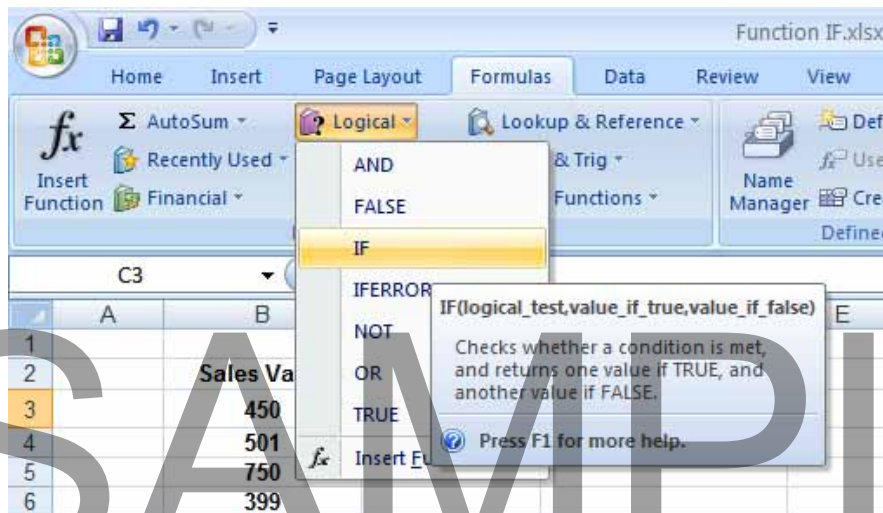
- You will see the following. Try entering different values into cell **A3**, such as **Medium** or **Large**:

	C3	fx =VLOOKUP(A3,A7:C10,3)	
	A	B	C
1			
2	Packet Size	Normal Post	Priority Post
3	Small	0.50	1.00
4			
5			
6			
7	Packet Size	Normal post price	Priority Post price
8	Large	2.00	4.00
9	Medium	1.50	3.00
10	Small	0.50	1.00

- Save your changes and close the workbook.

## Using logical functions: IF

- Open a workbook called **Function IF**. This example calculates a discount based on order quantity. The company offers its customers a 5% discount if the value of an order is above 500. There is no discount if the value is below 500. A way of simplifying the above statement is as follows: **If the sale value is greater than 500 give 5% discount otherwise give no discount.**
- Click on cell **C3**.
- Click on the **Formulas** tab and from within the **Function Library** group click on the **Logical** button. From the drop down list displayed, click on the **IF** function, as illustrated.



- The **Function Arguments** dialog box will be displayed:

**Function Arguments**

IF

**Logical\_test** |  = logical

**Value\_if\_true**  = any

**Value\_if\_false**  = any

=

Checks whether a condition is met, and returns one value if TRUE, and another value if FALSE.

**Logical\_test** is any value or expression that can be evaluated to TRUE or FALSE.

Formula result =

[Help on this function](#)

- Click on the **Logical\_test** section of the dialog box and enter **B3>500**.
- Click on the **Value\_if\_true** section of the dialog box and enter **B3\*5%**.
- Click on the **Value\_if\_false** section of the dialog box and enter **0**.

**Function Arguments**

IF

**Logical\_test** B3>500 = FALSE

**Value\_if\_true** B3\*5% = 22.5

**Value\_if\_false** 0 = 0

= 0

Checks whether a condition is met, and returns one value if TRUE, and another value if FALSE.

**Value\_if\_false** is the value that is returned if Logical\_test is FALSE. If omitted, FALSE is returned.

Formula result = 0

[Help on this function](#)

- When you press the **OK** button, you will see the following. As the value in cell **B3** is less than **500**, the discount value is **zero**:

	A	B	C	D
1				
2		Sales Value	Discount Value	
3		450	0	
4		501		
5		750		
6		399		
7				

- Copy the formula in cell **C3** to cells **C4:C6** using the typical fill handle technique.
- You will see the following. As you can see where the sales value is above **500**, a discount value is displayed:

	A	B	C	D
1				
2		Sales Value	Discount Value	
3		450	0	
4		501	25.05	
5		750	37.5	
6		399	0	
7				
8				

- Save your changes and close the workbook.

## Using logical functions: AND

- Open a workbook called **Function AND**. In this example, we have the results of a two-part examination; candidates must achieve over **50** in **EACH** part of the examination.
- Click on cell **D3** and enter the following:  

$$=IF(AND(B3>50,C3>50),\$F\$2,\$F\$3)$$
- When you press **Enter** you should see the following, as the candidate scored less than 50 in the first part of the examinations:

	A	B	C	D	E	F
1						
2		Exam results for part 1	Exam results for part 2	Passed (yes/No)		Passed
3	Elliot	40	60	Not passed		Not passed
4	Hebe	60	40			
5	Ariel	40	40			
6	Anora	75	75			
7						

- Copy the formula in cell **D3** to the cell range **D4:D6** and you will see the following:

	A	B	C	D	E	F
1						
2		Exam results for part 1	Exam results for part 2	Passed (yes/No)		Passed
3	Elliot	40	60	Not passed		Not passed
4	Hebe	60	40	Not passed		
5	Ariel	40	40	Not passed		
6	Anora	75	75	Passed		
7						

- The only person to get more than 50 in **both** parts of the examination is **Anora**, who is the only person to pass the entire examination.
- Save your changes and close the workbook.

### Using logical functions: OR

- Open a workbook called **Function OR**. In this example, we have the results of a two-part examination and candidates can pass the entire examination by achieving a score of **> 75 in either** part of the examination.
- Click on cell **D3** and enter the following:

**=IF(OR(B3>75,C3>75),\$F\$2,\$F\$3)**

- When you press **Enter** you should see the following, as the candidate scored less than **75** in both parts of the examination:

	A	B	C	D	E	F
1						
2		Exam results for part 1	Exam results for part 2	Passed (yes/No)		Passed
3	Elliot	40	40	Not passed		Not passed
4	Hebe	78	20			
5	Ariel	50	80			
6	Rob	89	79			
7						

- Copy the formula in cell **D3** to the cell range **D4:D6** and you will see the following:

	A	B	C	D	E	F
1						
2		Exam results for part 1	Exam results for part 2	Passed (yes/No)		Passed
3	Elliot	40	40	Not passed		Not passed
4	Hebe	78	20	Passed		
5	Ariel	50	80	Passed		
6	Rob	89	79	Passed		
7						
8						

- The only person to get less than **75** marks in either part of the examination is **Elliot**, who is the only person to not pass the entire examination.
- Save your changes and close the workbook.

## Using logical functions: ISERROR

- In the example shown below, we have a formula in cell **B2** as follows:

**=D2/E2**

- However, cell **E2** is empty and this generates an error:

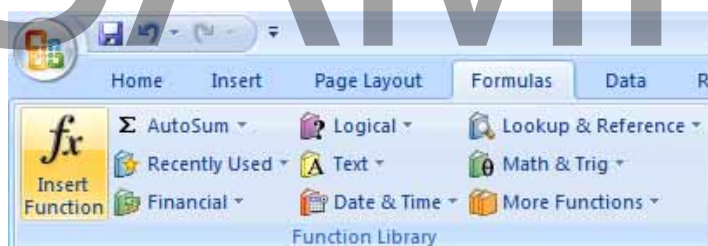
	A	B	C	D	E
1					
2	The cell to the right contains an error	#DIV/0!		5	
3					
4					
5					
6	Does the cell B2 contain an error?	TRUE			

- We have used the **ISERROR** function in cell **B6** to pick up the fact that this cell contains an error, using the syntax:

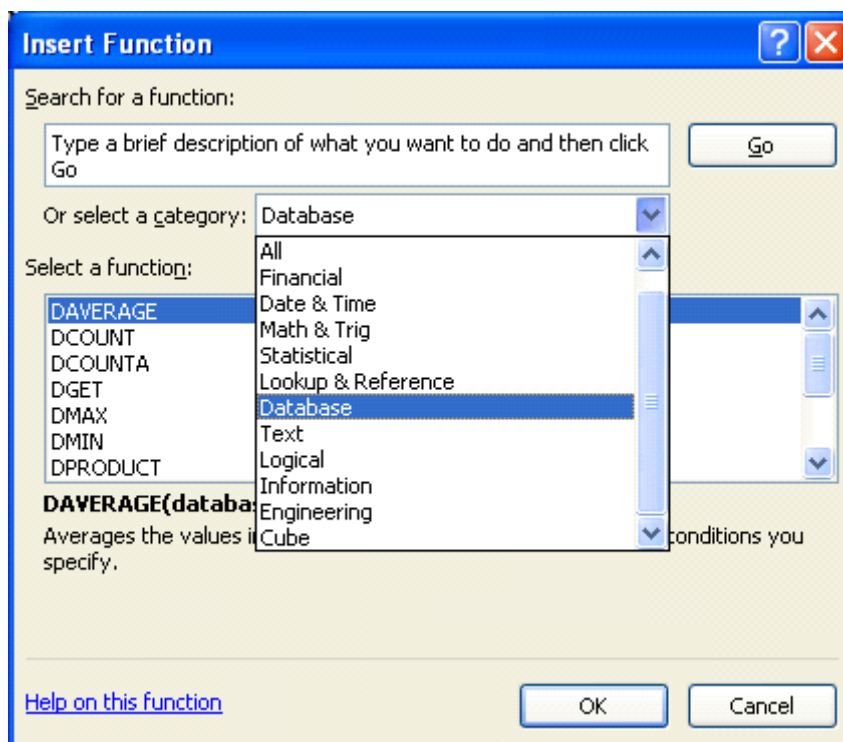
**=ISERROR(B2)**

## Using database functions: DSUM

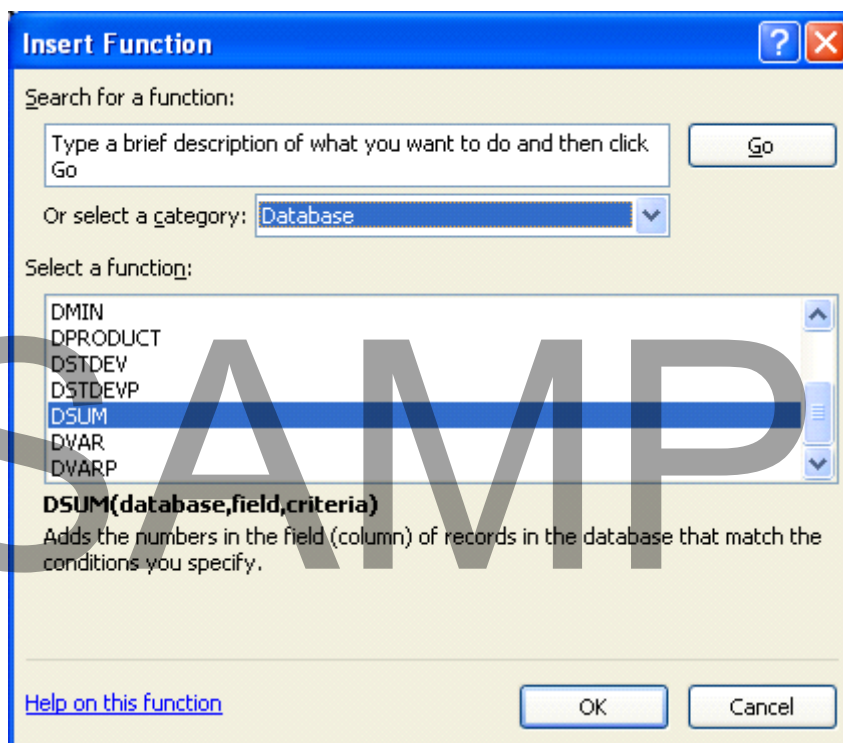
- Open a workbook called **Function DSUM**. In this example, we will sum up the total value of all sales people whose sales are above their sales targets.
- Click on cell **D14**.
- Click on the **Formulas** tab and from within the **Function Library** group click on the **Insert Function** button.



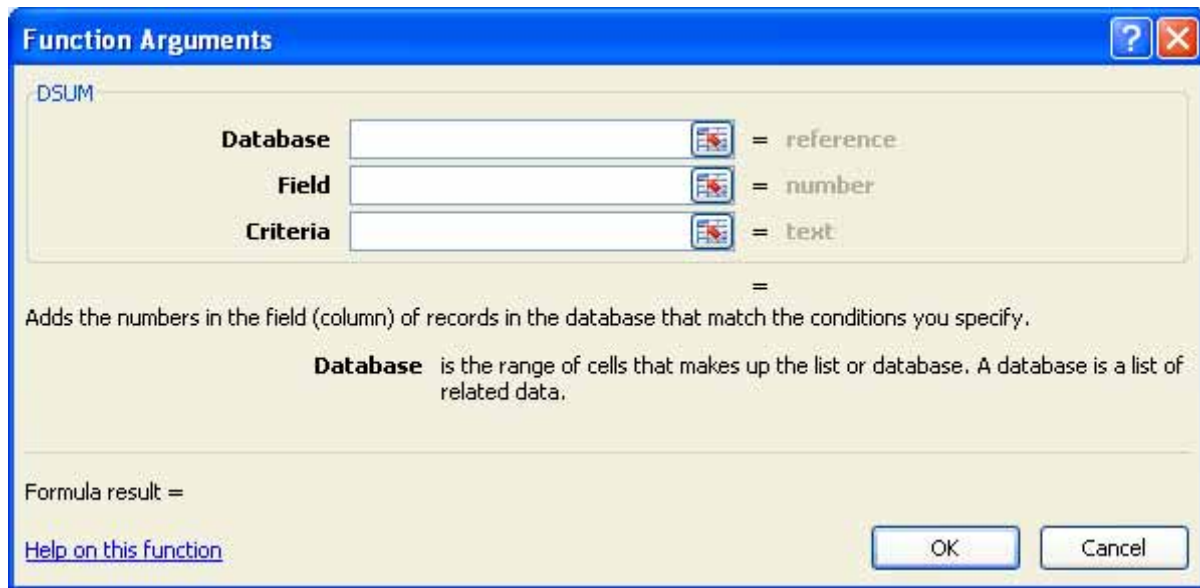
- This will display the **Insert Function** dialog box. Use the **Category** control to display **Database** functions.



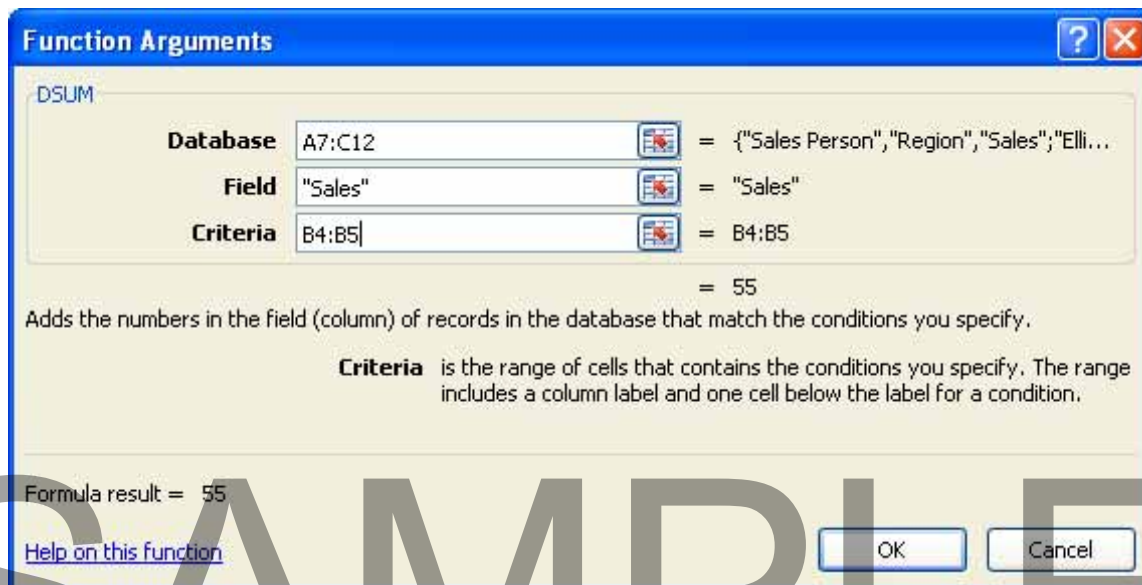
- Select the **DSUM** function and click on the **OK** button.



- The **Function Arguments** dialog box will be displayed:



- Click on the **Database** section of the dialog box and then select cells **A7:C12**.
- Click on the **Field** section of the dialog box and enter "**Sales**".
- Click on the **Criteria** section of the dialog box and then select cells **B4:B5**.



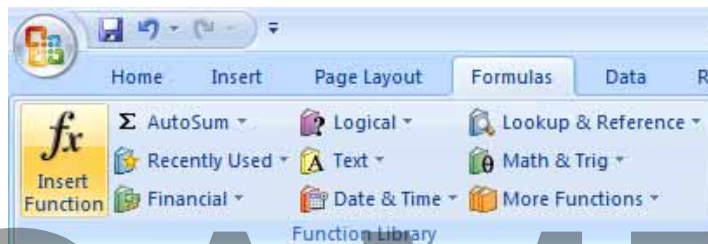
- Click on the **OK** button to see the results illustrated:

	A	B	C	D	E
1	<b>Example using DSUM</b>				
2					
3					
4		Sales			
5	Sales Target	>20			
6					
7	<b>Sales Person</b>	<b>Region</b>	<b>Sales</b>		
8	Elliot	South	18		
9	Hebe	South	34		
10	Ariel	North	4		
11	Anora	East	21		
12	Dave	West	19		
13					
14			The total values of sales for sales people above target is ...	55	
15					

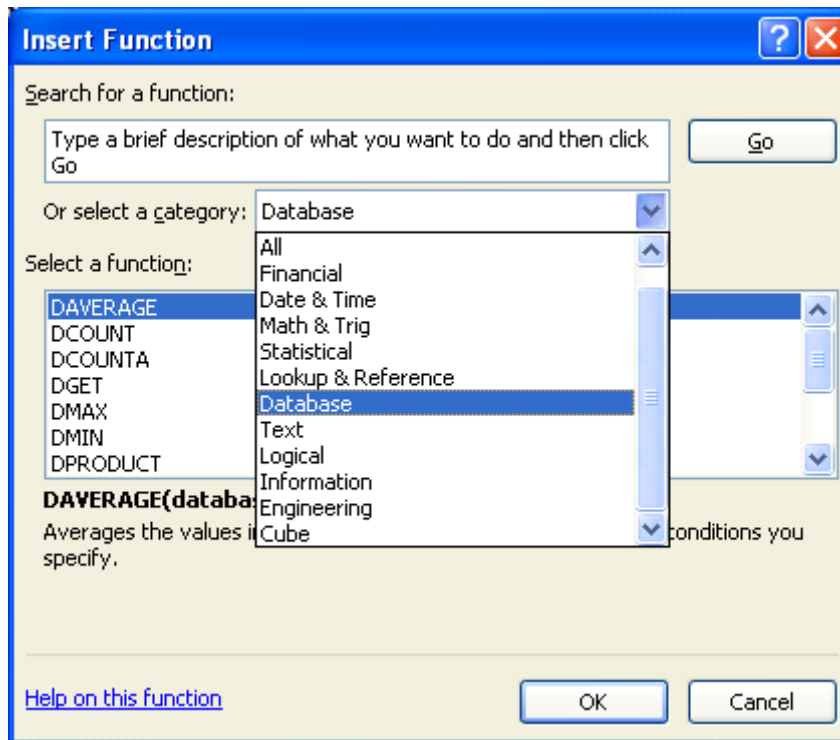
- Save your changes and close the workbook.

## Using database functions: DMIN

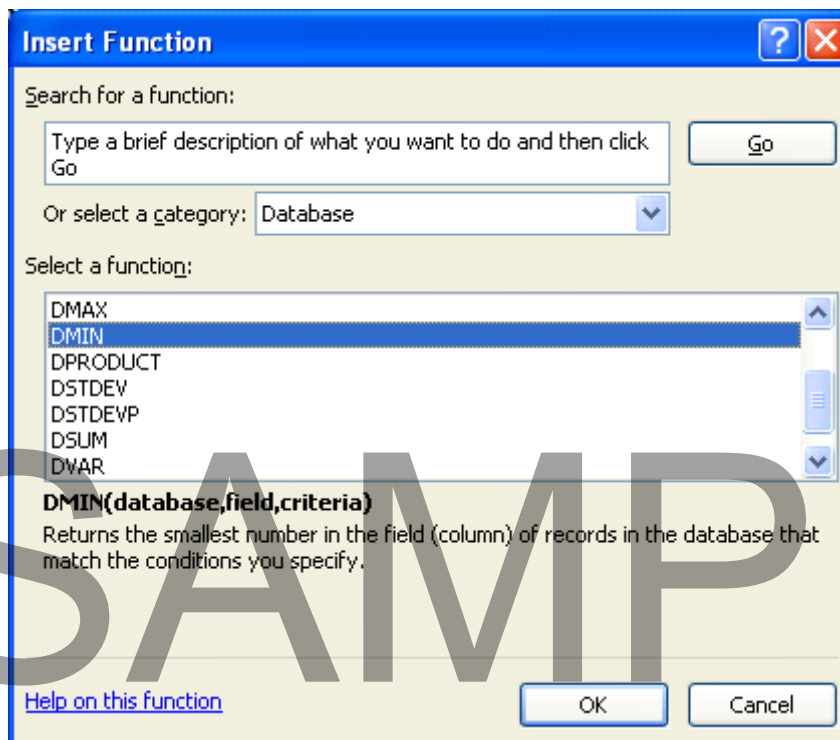
- Open a workbook called **Function DMIN**. In this example, we will use the DMIN function to see what the lowest sales figure of any of our sales people is.
- Click on cell **D14**.
- Click on the **Formulas** tab and from within the **Function Library** group click on the **Insert Function** button.



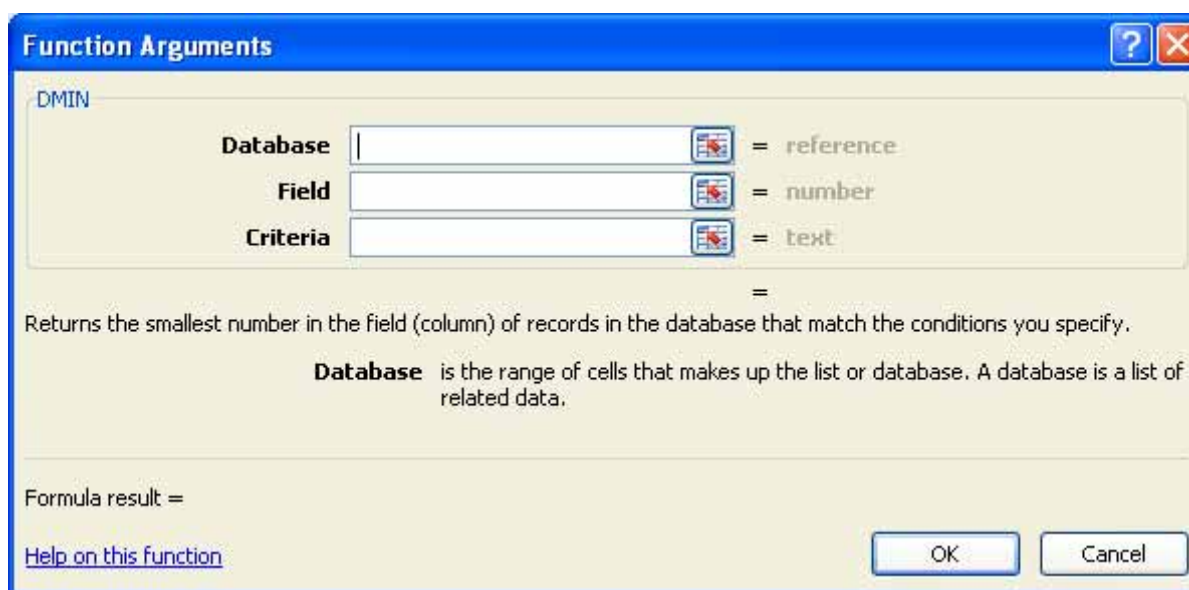
- This will display the **Insert Function** dialog box. Use the **category** control to display **Database** functions.



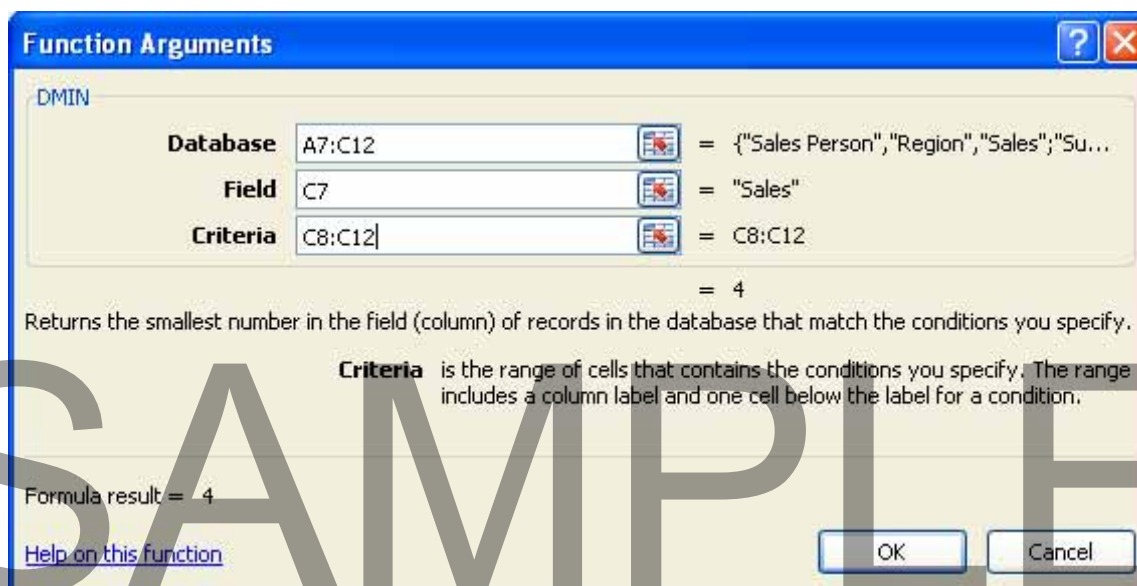
- Select the **DMIN** function and click on the **OK** button.



- The **Function Arguments** dialog box will be displayed:



- Click on the **Database** section of the dialog box and then select the cell range **A7:C12**.
- Click on the **Field** section of the dialog box and then click on cell **C7**.
- Click on the **Criteria** section of the dialog box and then select the cell range **C8:C12**.



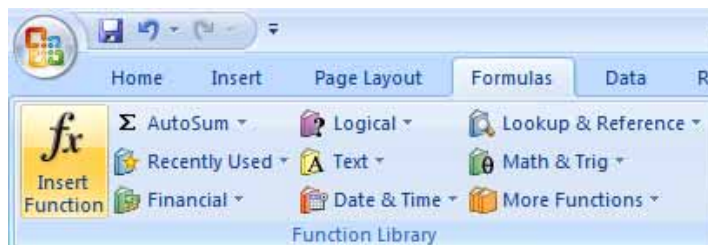
- When you click on the **OK** button, you will see the result, as illustrated:

	A	B	C	D
1	<b>Example using DMIN</b>			
2				
3				
4		Sales		
5	Sales Target	>20		
6				
7	<b>Sales Person</b>	<b>Region</b>	<b>Sales</b>	
8	Sue	South	24	
9	James	South	22	
10	John	North	4	
11	Kate	East	45	
12	Robert	West	19	
13				
14			The lowest sales figure of any sales person is ...	4

- Save your changes and close the workbook.

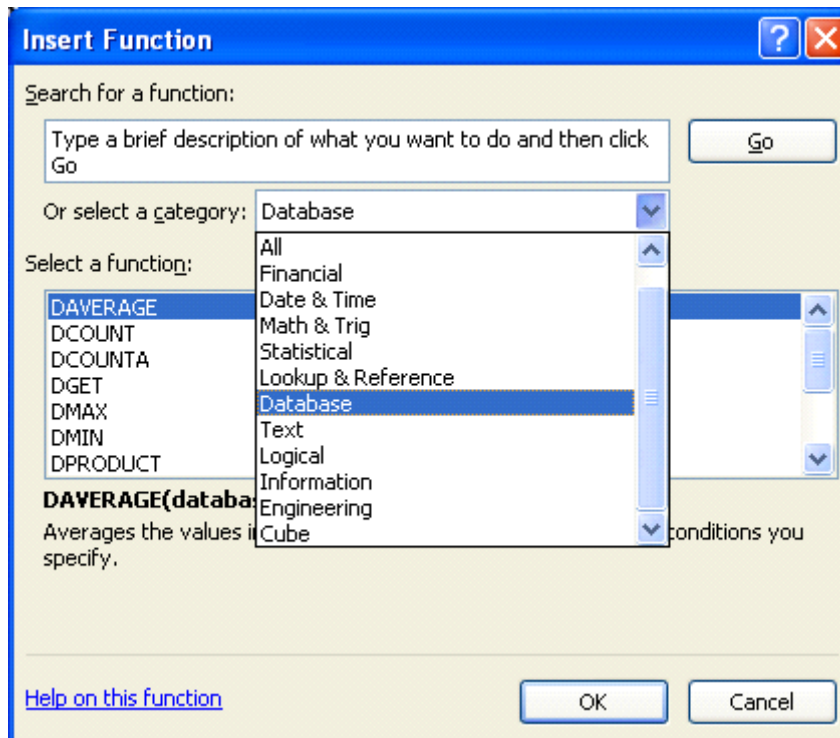
## Using database functions: DMAX

- Open a workbook called **Function DMAX**. In this example, we will use the DMAX function to see what the highest sales figure of any of our sales people is.
- Click on cell **D14**.
- Click on the **Formulas** tab and from within the **Function Library** group click on the **Insert Function** button.

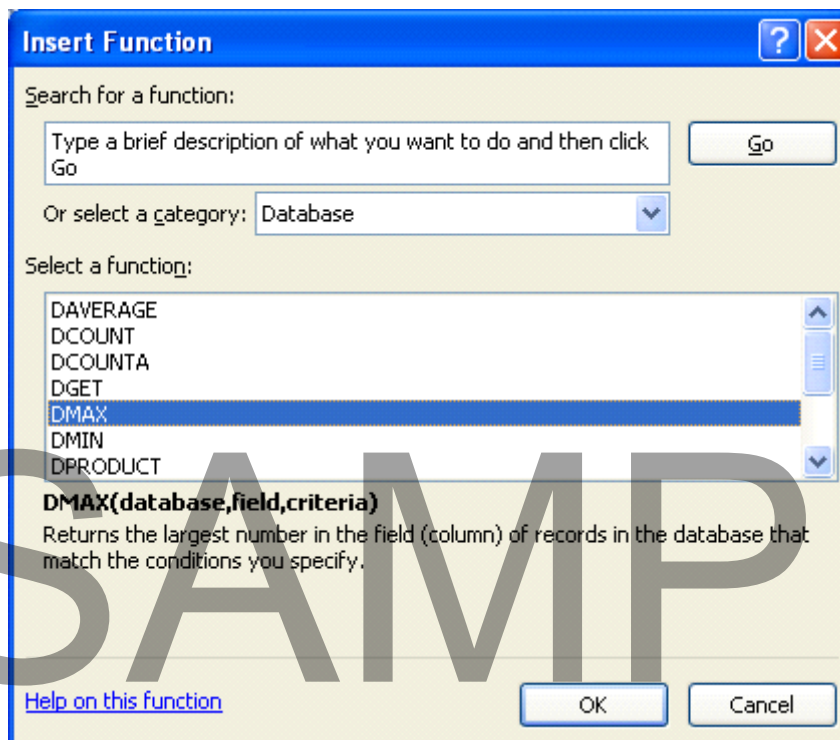


- This will display the **Insert Function** dialog box. Use the category control to display **Database** functions.

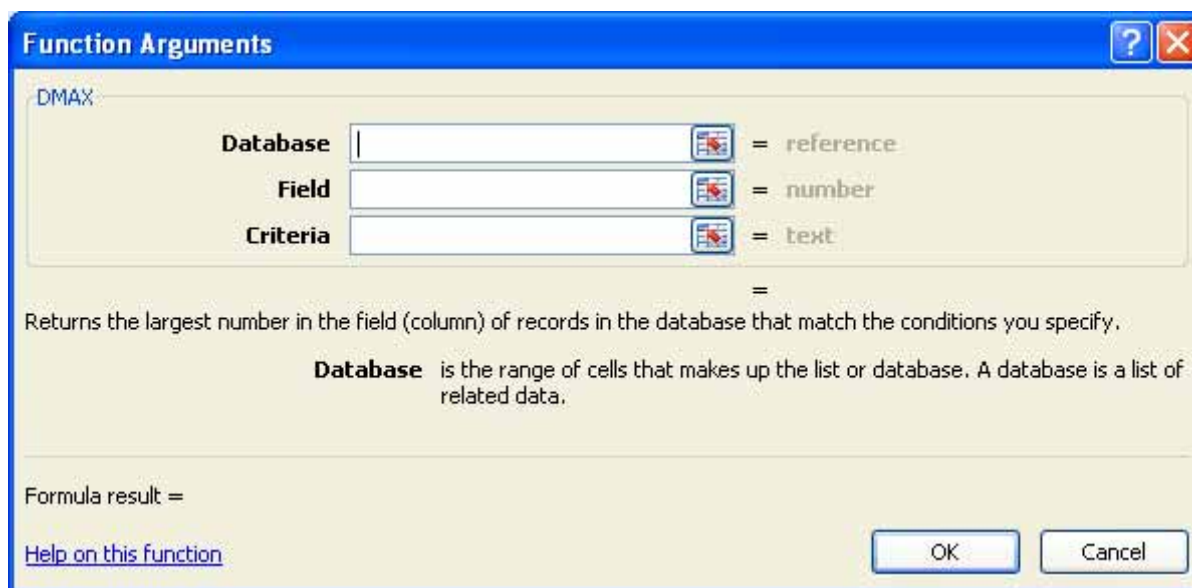
SAMPLE



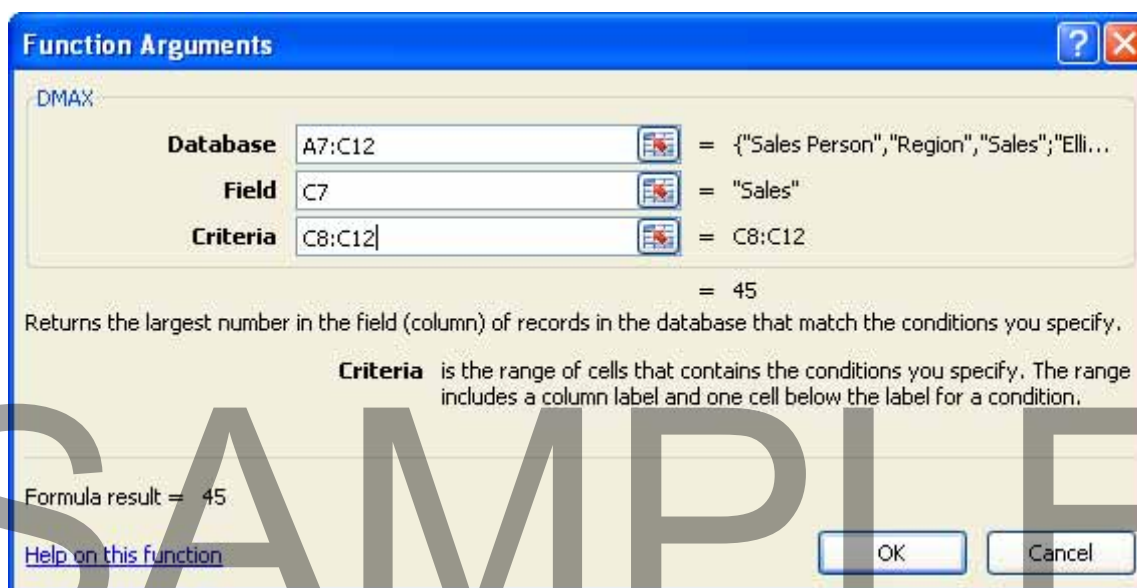
- Select the **DMAX** function and click on the **OK** button.



- The **Function Arguments** dialog box will be displayed:



- Click on the **Database** section of the dialog box and then select the cell range **A7:C12**.
- Click on the **Field** section of the dialog box and then click on cell **C7**.
- Click on the **Criteria** section of the dialog box and then select the cell range **C8:C12**:



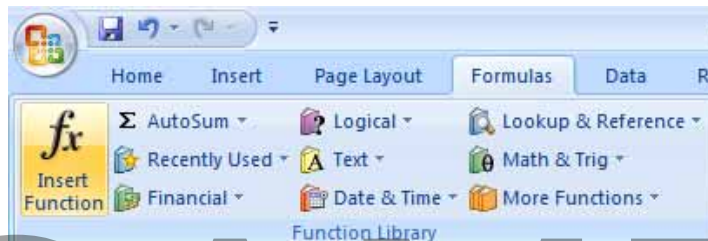
- When you click on the **OK** button, you will see the result, as illustrated:

	A	B	C	D
1	<b>Example using DMAX</b>			
2				
3				
4		Sales		
5	Sales Target	>20		
6				
7	<b>Sales Person</b>	<b>Region</b>	<b>Sales</b>	
8	Elliot	South	24	
9	Hebe	South	22	
10	Ariel	North	4	
11	Anora	East	45	
12	Dave	West	19	
13				
14			The highest sales figure of any sales person is ...	45
15				

- Save your changes and close the workbook.

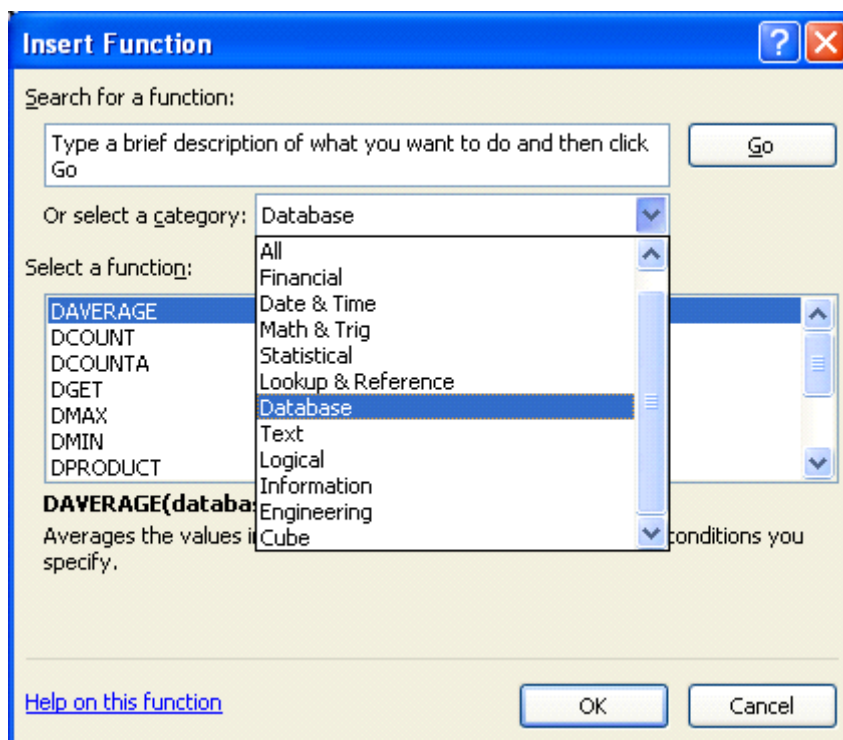
## Using database functions: DCOUNT

- Open a workbook called **Function DCOUNT**. In this example, we have a number of sales people, and their target sales should be above 20. We wish to use the DCOUNT function to show the sales people who are above target sales.
- Click on cell **D14**.
- Click on the **Formulas** tab and from within the **Function Library** group click on the **Insert Function** button.

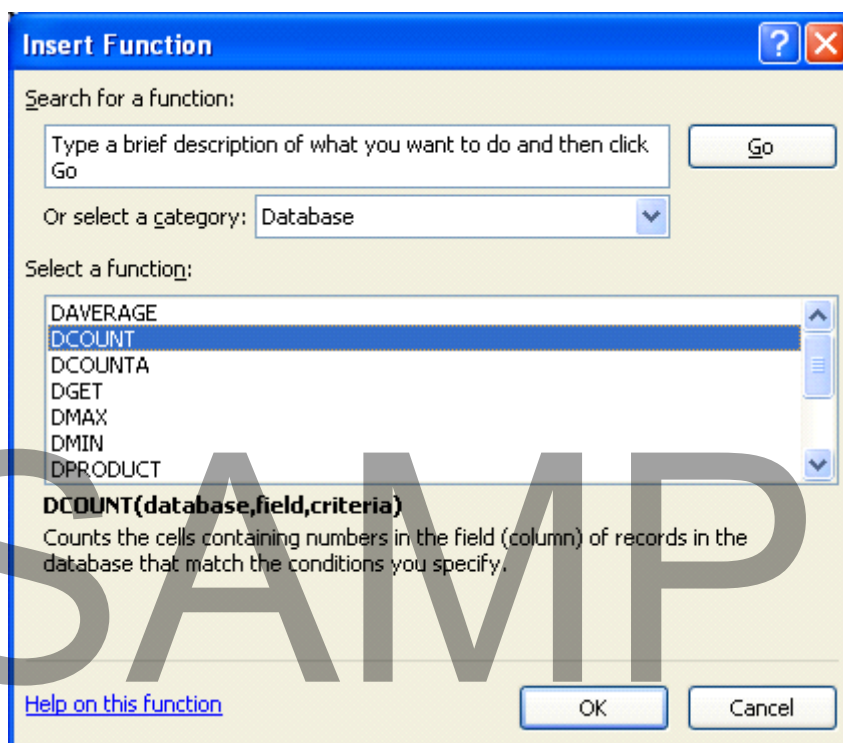


- This will display the **Insert Function** dialog box. Use the category control to display **Database** functions.

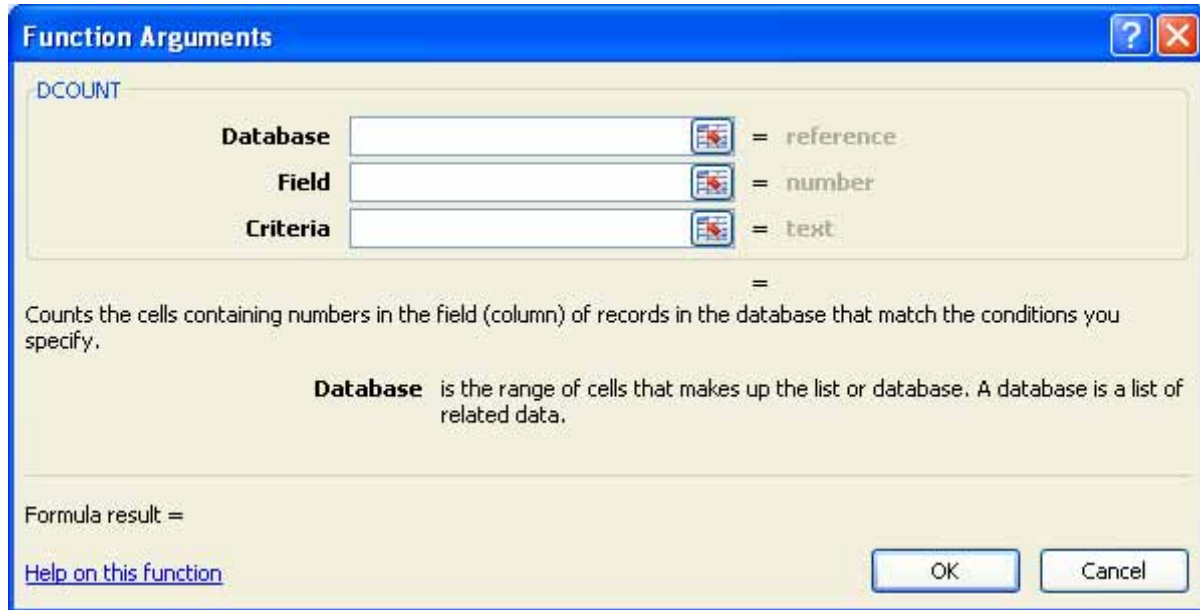
SAMPLE



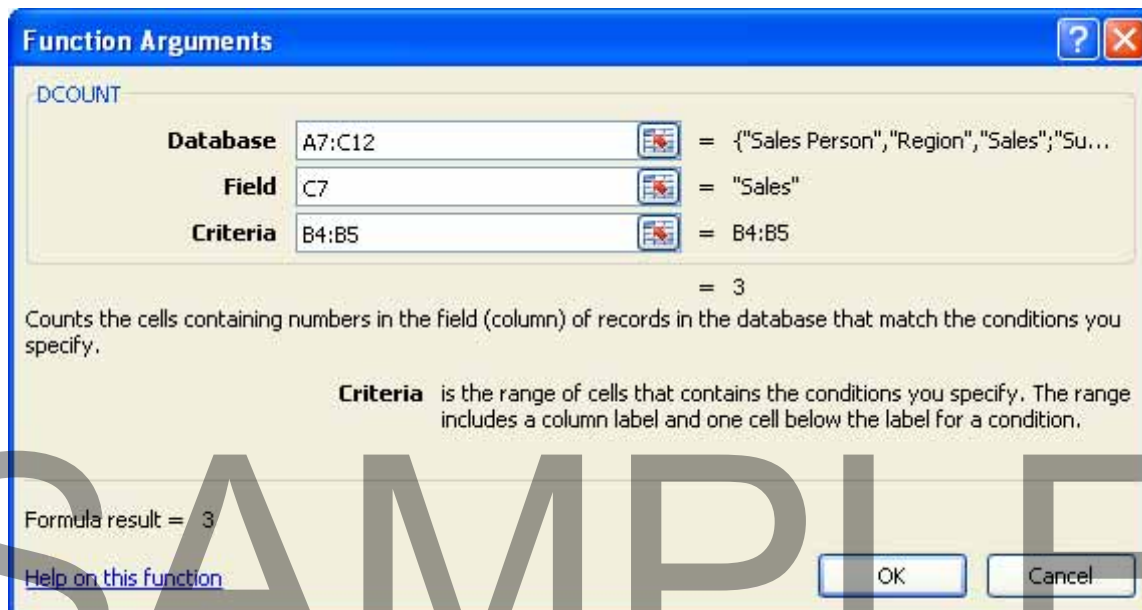
- Select the **DCOUNT** function and click on the **OK** button.



- The **Function Arguments** dialog box will be displayed:



- Click within the **Database** section of the dialog box and then select cells **A7:C12**.
- Click within the **Field** section of the dialog box and then click on cell **C7**.
- Click within the **Criteria** section of the dialog box and then select cells **B4:B5**:



- Click on the **OK** button and the results will be as illustrated:

	A	B	C	D
1	<b>Example using DCOUNT</b>			
2				
3				
4		Sales		
5	Sales Target	>20		
6				
7	<b>Sales Person</b>	<b>Region</b>	<b>Sales</b>	
8	Sue	South	24	
9	James	South	22	
10	John	North	4	
11	Kate	East	45	
12	Robert	West	19	
13				
14			Number of sales people reaching their targets	3

- Save your changes and close the workbook.

## Using nested functions

- Open a workbook called **Nested functions**.
- This workbook contains sales results for the **North** and **South** region, along with total and average sales results for the two regions.
- The average sales target of a region is **25** (per sales person).
- We want to be able to sum up only those sales of the region that is above the sales target.
- Click on cell **B13** and enter the following formula:

**=IF(AVERAGE(B3:B6)>25,SUM(B3:B6),0)**

- Once you have entered this formula, use drag and drop to copy this formula to cell **C13**. The result should be as illustrated.
- Sales for the **North** region exceeded their targets, (i.e. the average is over **25**) so in cell **B13** you see the sales summed, while in cell **C13**, you see a **0** figure as sales for the **South** region were below an average of **25**:

SAMPLE

	A	B	C
1			
2	Sales person	Sales (North Region)	Sales (South Region)
3	Nyah	20	20
4	Carla	30	10
5	Rowan	50	10
6	Gina	10	40
7			
8	Average Sales	28	20
9	Total Sales	110	80
10			
11			
12	Sales target average is 25		
13	Total (if average sales are achieved)	110	
14			

- Save your changes and close the workbook.

# SAMPLE

## End of the preview sample



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