

Excel 2007

## Advanced Functions

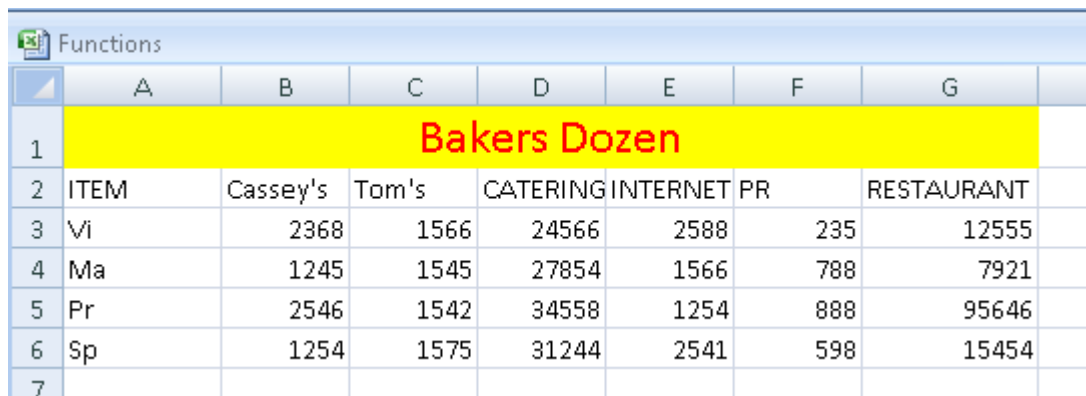
In this lesson you will learn how to:

### Complete Advanced Functions

- Concatenate Function
- Sum If Function
- Vlookup & Hlookup Functions
- If Function

Print out this lesson so that you can work alongside of it, practising the techniques as we work through the lesson.

Open a new Worksheet, type in the following table.



	A	B	C	D	E	F	G
1	<b>Bakers Dozen</b>						
2	ITEM	Cassey's	Tom's	CATERING	INTERNET	PR	RESTAURANT
3	Vi	2368	1566	24566	2588	235	12555
4	Ma	1245	1545	27854	1566	788	7921
5	Pr	2546	1542	34558	1254	888	95646
6	Sp	1254	1575	31244	2541	598	15454
7							

We need a Table in order for us to complete our functions. The first function we are going to use is the Concatenate Function.

### Concatenate Function

Let's say we want to have three of our column data in one column at the end of our table. This would give us a quick reference. Or we might want to delete 3 columns and replace one column with the data from all three.

First we place the cursor where we want the new text to be placed.

Press the Formula Tab, click on Text then on Concatenate. Then enter the cell references separated by a \_ to distinguish from one cell to another. The first cell we would enter is the ITEM cell which is A2 this is too be placed in the first text box of the box that opens up. In the second text area, we would place \_ in the third B2, in the fourth \_ and in the fifth C2. Excel 2007 then shows us in text what the completed function will look like. That is the result what we want so we click on OK.

Bakers Dozen						
ITEM	Cassey's	Tom's	CATERING	INTERNET	PR	RESTAURANT
Vi	2368	1566	24566	2588	235	12555
Ma	1245	1545	27854	1566	788	7921
Pr	2546	1542	34558	1254	888	95646
Sp	1254	1575	31244	2541	598	15454

Function Arguments

CONCATENATE

Text1: A2 = "ITEM"

Text2: "\_" = "\_"

Text3: B2 = "Cassey's"

Text4: "\_" = "\_"

Text5: C2 = "Tom's"

Result: = "ITEM\_Cassey's\_Tom's"

Joins several text strings into one text string.

**Text5:** text1, text2, ... are 1 to 255 text strings to be joined into a single text string and can be text strings, numbers, or single-cell references.

Formula result = ITEM\_Cassey's\_Tom's

[Help on this function](#)

OK Cancel

Once you have completed the function, you will see the results on your worksheet, click and drag to copy the function down the column.

	G	H	I	J	K
	RESTAURANT			ITEM_Cassey's_Tom's	
35	12555			Vi_2368_1566	
38	7921			Ma_1245_1545	
38	95646			Pr_2546_1542	
38	15454			Sp_1254_1575	

We can now select the row, click on copy, go to the place where we want the new information A2 and click Paste Special, then Values.

A	B	C	D	E
<b>Bakers Dozen</b>				
ITEM_Cassey's_Tom's	CATERING	INTERNET	PR	RESTAURANT
Vi_2368_1566	24566	2588	235	12555
Ma_1245_1545	27854	1566	788	7921
Pr_2546_1542	34558	1254	888	95646
Sp_1254_1575	31244	2541	598	15454

On this table I have copied and pasted 3 columns into one.

## SUM IF

Insert the following table and enter the data. What we are going to do with this table is find the total amounts of what's been sold.

	A	B	C	D	E
1	<b>Item</b>	<b>Quantity</b>	<b>Cost</b>	<b>Total</b>	
2	Laptop	4	£499.99		
3	PC Workstation	2	£599.99		
4	Office 2007	7	£359.00		
5	Norton AntiVirus	4	£58.00		
6	Ream PC Paper	15	£11.00		
7	Laptop	7	£499.99		
8	Office Student	9	£99.50		
9	Office 2007	3	£359.00		
10	Ream PC Paper	5	£11.00		
11	DL Envelopes 100	10	£15.00		
12	DL Envelopes 100	5	£15.00		
13	PC Workstation	3	£599.99		
14					

But if we had a very large workbook, we would find it takes ages to count the number of Laptops, say. So we are going to do a function to give us the information.

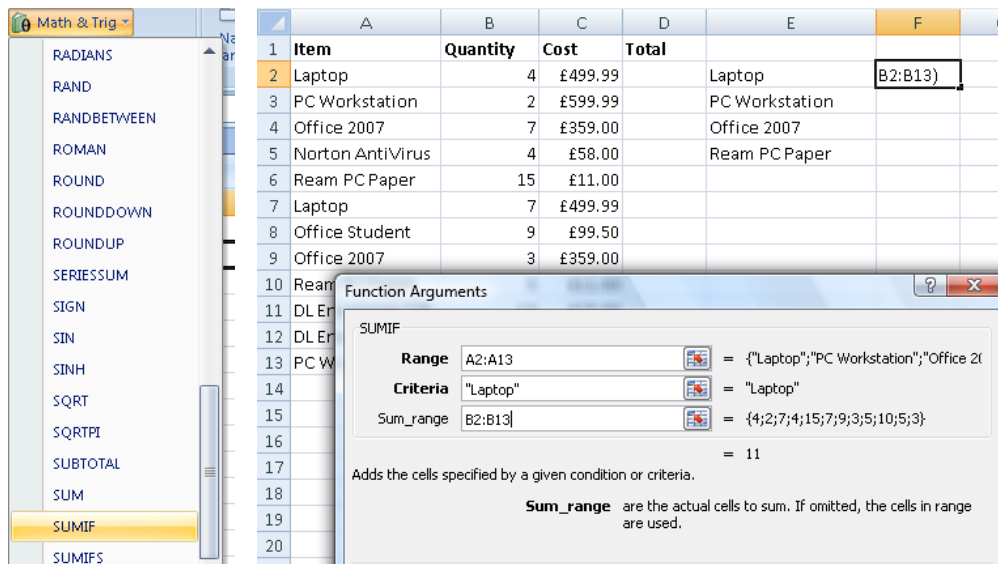
	D	E	F	G
	<b>Total</b>			
.99		Laptop		
.99		PC Workstation		
.00		Office 2007		
.00		Ream PC Paper		
.00				
.99				

Type in the data in column E

Place your cursor where you want the new data to go.

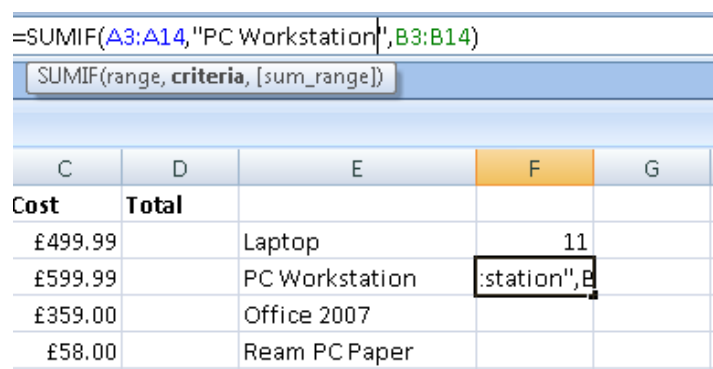
Place it in cell F2 until it is surrounded by a black box. As shown previously.

Go to the Functions area, in the Formulas Tab, click on the maths & trig option. From the fly-out choose SUM IF



From the dialogue box that opens up we enter the data. In the Range Box, we must enter the range of cells where we want to get our data from. A2:A13 In the Criteria we tell Excel what to find when doing the sum. In the Sum Range we give Excel the cells where it can sum up. B2:B13.

When we copy the cell down, it gives the wrong answer, we must remember to format the new cell with the correct information.



In the formula bar we must change Laptop to PC Workstation. Do not remove the Quotation marks. We will then get the right answer. Complete the function for each of the criteria's. Copy the function down and remember to place the cursor in the new cell.

Laptop	11
PC Workstation	5
Office 2007	10
Ream PC Paper	20

There we have it, the total amounts sold of each item.

## Look Ups

These types of functions are very powerful functions in Excel 2007.

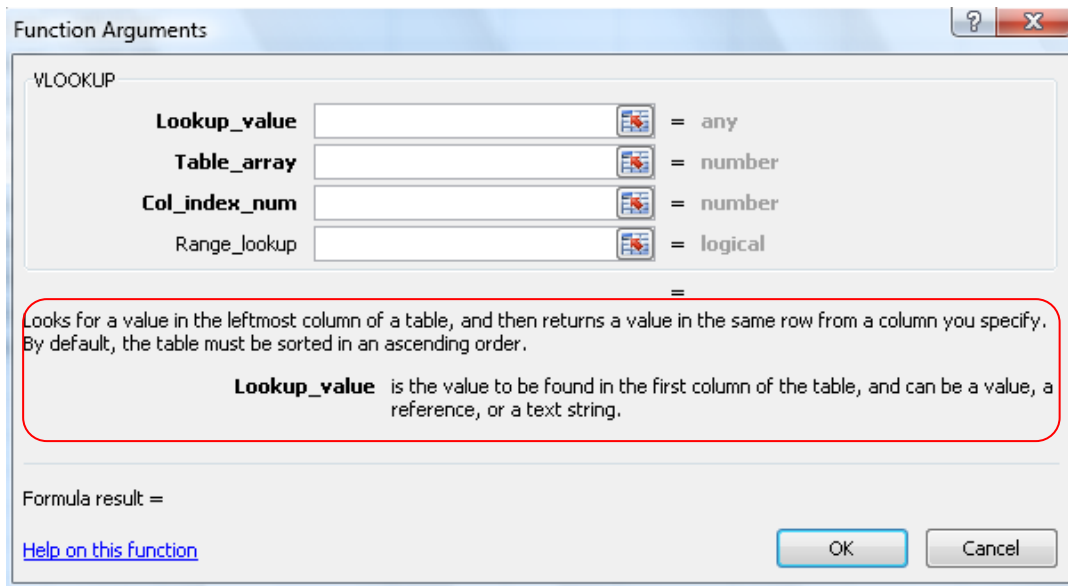
	A	B	C	D	E
1	<b>Item No</b>	<b>Item Description</b>	<b>Quantity</b>	<b>Cost</b>	<b>Total</b>
2	1	Laptop	4	£499.99	1999.96
3	2	PC Workstation	2	£599.99	1199.98
4	3	Office 2007	7	£359.00	2513.00
5	4	Norton AntiVirus	4	£58.00	232.00
6	5	Ream PC Paper	15	£11.00	165.00
7	6	Laptop	7	£499.99	3499.93
8	7	Office Student	9	£99.50	895.50
9	8	Office 2007	3	£359.00	1077.00
10	9	Ream PC Paper	5	£11.00	55.00
11	10	DL Envelopes 100	10	£15.00	150.00
12	11	DL Envelopes 100	5	£15.00	75.00
13	12	PC Workstation	3	£599.99	1799.97

Here we have our table again and I've completed the totals by adding a formula for the first total and copying down. I've also inserted an Item No column. Fill in the missing data in your table.

## VLOOKUP

Choose VLOOKUP from the fly out in the Lookup and Reference category in the formulas tab. VLOOKUP is the easiest type of Lookup function. It looks up information in columns. A HLOOKUP function would find the information on a row, so in a work situation it would depend on how the tables are set out as to what kind of Look up you would use.

In this exercise we are going to find data based on the item number to find out the cost of the item. The VLOOKUP function searches in the first column for the data. If we had a large amount of data this function would cut down the work.



Here we have the function box, if you read the text on this box, you will get an idea of what the VLOOKUP function does. We need to enter in 4 references for the function. The first text box is the lookup\_value and will be looking at the data in the first column of our table for our result.

Enter in F7 as that is the cell we want the value in.

D	E	F	G	H
st	Total			
:499.99	1999.96			
:599.99	1199.98			
:359.00	2513.00			
£58.00	232.00			
£11.00	165.00	Item No	Cost	
:499.99	3499.93			
£99.50	895.50			
:359.00	1077.00			
£11.00	55.00			
£15.00	150.00			

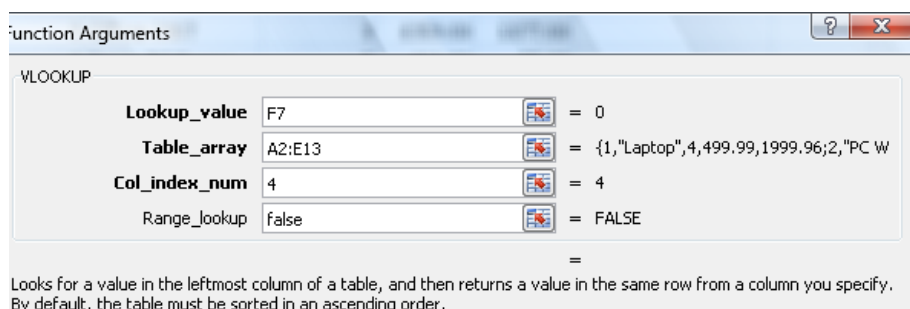
The Table\_array is the whole table, Enter in A2:E13 we do not need to include the headings.

The next box is Col\_index\_num in this box we would enter in the cost of each item which is in Column 4, notice we enter in the number of the column and not the cell reference, we find the

number by simply counting the columns until we come to the right one.

The final box asks for the Range\_lookup, because we want an exact match we will enter FALSE.

Our arguments box now looks like this. Click on OK.



D	E	F	G	H
Cost	Total			
£499.99	1999.96			
£599.99	1199.98			
£359.00	2513.00			
£58.00	232.00			
£11.00	165.00	Item No	Cost	
£499.99	3499.93	4	#N/A	
£99.50	895.50			
£359.00	1077.00			
£11.00	55.00			
£15.00	150.00			

The Table above now looks as if we have entered in the wrong formula but we have not, it is simply looking for something to look up.

In F7 enter 4 under Item No, in cell F7 press enter and you should have a result, check manually to see if it is correct. If it is not check the formula on the next page, there is probably something that you have not entered in correctly. Lookup is a very complex formula, so well done for getting this far. Try more amounts of the Item No.

G7      fx      =VLOOKUP(F7,A2:E13,4,FALSE)

Functions

A	B	C	D	E	F	G
<b>Item #</b>	<b>Item Description</b>	<b>Quantity</b>	<b>Cost</b>	<b>Total</b>		
1	Laptop	4	£499.99	1999.96		
2	PC Workstation	2	£599.99	1199.98		
3	Office 2007	7	£359.00	2513.00		
4	Norton AntiVirus	4	£58.00	232.00		
5	Ream PC Paper	15	£11.00	165.00	Item No	Cost
6	Laptop	7	£499.99	3499.93	4	£ 58.00
7	Office Student	9	£99.50	895.50		
8	Office 2007	3	£359.00	1077.00		
9	Ream PC Paper	5	£11.00	55.00		
10	DL Envelopes 100	10	£15.00	150.00		
11	DL Envelopes 100	5	£15.00	75.00		
12	PC Workstation	3	£599.99	1799.97		

## IF Function

The IF function = if a condition is true or not true. It is not very difficult to learn and is very useful.

We want to see how many students have passed a test. The value would be 75% so that is the condition. Students will then Pass or Fail that condition.

Type the following table.

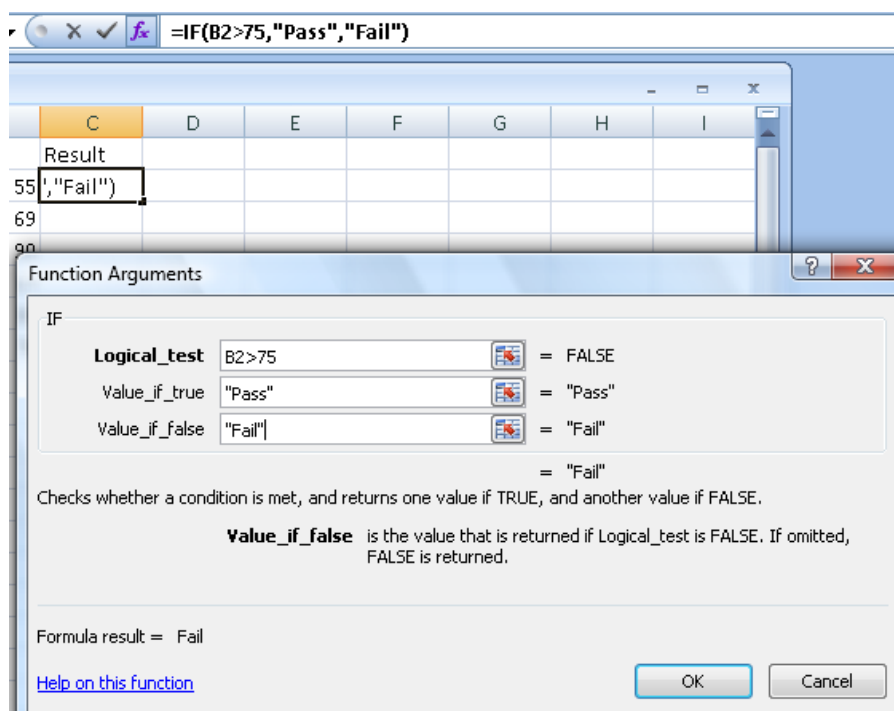
Name	Grade	Result	
C Barker	55		
B Dalley	69		
D William	90		
F Fuller	67		
C Charles	88		
T Smith	76		

Place your cursor in the cell C2 or on the first result cell.

Click on the Formulas Tab/Logical/If

The first box asks us for the condition, so we would enter in the cell reference where the condition data is B2, then the greater than sign >, then add the condition 75%.

The second box asks what if the value is true. Type in "Pass" the next box asks what if the value, were false, so type in "Fail".



That is all you need to enter, click on OK. Copy the formula down and you have the results.

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F
1	Name	Grade	Result			
2	C Barker	55	Fail			
3	B Dalley	69	Fail			
4	D William	90	Pass			
5	F Fuller	67	Fail			
6	C Charles	88	Pass			
7	T Smith	76	Pass			
8						

There are many functions in Excel, if you like functions and want to learn more, you can buy textbooks just on Formulas and Functions. Or if you are brave you can see the screen tip of what any function does, (if you have customised your Excel to show screen tips). You can then get an idea of what the function does and complete many of your own.

That is the end of this lesson: If you practised as we worked through the lesson, you will have learned how to apply the:

- Concatenate Function
- Sum If Function
- VLOOKUP Function
- If Function

Well Done