

## Lesson 2-12: Create your own formulas

The AutoSum tool is very useful for quickly inserting SUM(), AVERAGE(), COUNT(), MAX() and MIN() formulas into cells. Many Excel users never get any further with their formulas than this.

In this session you'll create your own formulas without the use of AutoSum. You'll be amazed at how easy it is.

- 1 Open *First Quarter Sales and Profit-6* from your sample files folder (if it isn't already open).
- 2 Select cells A10:B10 and press the **<Delete>** key once.  
The previous contents of cells A10:B10 are removed.
- 3 Type the word **Costs** into cell A11 and **Profit** into cell A12.
- 4 Type the value **83,000** into cell B11 and press the **<Enter>** key to move down to cell B12.

11	Costs	83,000
12	Profit	

- 5 Enter a formula into cell B12 to compute the profit made in January.
  1. Type: **=B9-B11** into cell B12.
  2. Press the **<Enter>** key.

The profit for January is displayed:

9	Sales	129,000
10		
11	Costs	83,000
12	Profit	46,000

- 6 Enter the formula again using the mouse to select cell references.

The method that you have just used to enter the formula works just fine but it isn't the best method. Sooner or later you will make a mistake. For example you could easily type **=B8-B11** resulting in an incorrect answer.

To eliminate such errors you should always select cell references visually rather than simply type them in. You can visually select cells using either the mouse or the keyboard. First we'll use the mouse method.

1. Click in cell B12 and press the **<Delete>** key on the keyboard to clear the old formula.
2. Press the equals **<=>** key on the keyboard.
3. Click once on the value 129,000 in cell B9.
4. Press the minus **<->** key on the keyboard.

### important

Formulas automatically recalculate whenever any of the cells in the formula change.

For example: If you were to change the *Paris* sales to 45,000 this would cause cell B9 to re-calculate to 139,000.

Because B9 has changed this would, in turn, cause the profit to re-calculate to 56,000.

**First Quarter Sales and Profit-6**

5. Click once on the value 83,000 in cell B11.
6. Press the <Enter> key on the keyboard.

If you followed the above steps carefully you will see that you have created the same formula but with a much lower possibility of making a mistake.

**7** Enter the formula again using the visual keyboard technique.

The very best Excel experts hardly use the mouse. You waste valuable seconds every time you reach for the mouse.

Here's the expert technique of visual selection via keyboard:

1. Use the arrow keys to navigate to cell B12 and then press the <Delete> key on the keyboard to clear the old formula.
2. Press the <=> key on the keyboard.
3. Press the <Up Arrow> key three times to move to cell B9.
4. Press the <-> key on the keyboard.
5. Press the <Up Arrow> key once to move to cell B11.
6. Press the <Enter> key on the keyboard.

**8** Enter a formula that uses the multiplication operator.

This employer is very generous and pays the staff ten percent of all profits as an incentive bonus.

In cell A13 type the words: **10% Bonus** and then press the <Tab> key on the keyboard to move to cell B13.

**9** Enter a formula that uses the multiplication operator.

The multiplication operator is not an X as you might expect but an asterisk (\*). The other Excel operators are shown in the sidebar.

You need to press <Shift>+<8> to enter an asterisk. If you are using a full size keyboard with a numeric keypad at the right-hand side you can also use the numeric keypad's <\*> key.

Whichever key you use you'll still see an asterisk in the formula.

Use either the *mouse selection* technique or the *visual keyboard* technique to enter the formula shown below into cell B13 and then press the <Enter> key to see how much bonus was earned:

	A	B
11	Costs	83,000
12	Profit	46,000
13	10% Bonus	=B12*0.1

Note that multiplying a value by 0.1 calculates ten percent of the value.

11	Costs	83,000
12	Profit	46,000
13	10% Bonus	4,600

**10** Save your work as *First Quarter Sales and Profit-7*.

**important**

**The Excel Operators**

	Name	Example
+	Addition	1+2
-	Subtraction	7-5
*	Multiplication	6*3
/	Division	15/5
%	Percent	25%
^	Exponentiation	4^2