

## Lesson 2-15: Use AutoFill to adjust formulas

AutoFill can save you a lot of time when extending or copying text and number sequences. But the story's not over yet.

AutoFill's ability to copy and adjust formulas is one of the most powerful tools in Excel's impressive armory.

- 1 Open *First Quarter Sales and Profit 9* from your sample files folder (if it isn't already open).
- 2 Consider the formula in cell B9.

Click onto cell B9 and view the formula displayed in the formula bar (the formula bar is at the top right of the screen grab below).

|   | A  | B       | C      | D           | E       |
|---|--|---------|--------|-------------|---------|
| 1 | Sales and Profit Report - First Quarter 2008 |         |        |             |         |
| 2 |  |         |        | Formula Bar |         |
| 3 |  | Jan     | Feb    | Mar         | Average |
| 4 | New York                                     | 22,000  | 29,000 | 19,000      | 23,333  |
| 5 | Los Angeles                                  | 42,000  | 39,000 | 43,000      |         |
| 6 | London                                       | 18,000  | 20,000 | 22,000      |         |
| 7 | Paris  | 35,000  | 26,000 | 31,000      |         |
| 8 | Munich                                       | 12,000  | 15,000 | 13,000      |         |
| 9 | Sales  | 129,000 |        |             |         |

The formula is **=SUM(B4:B8)**. AutoSum created it for us in:

*Lesson 2-3: Use AutoSum to quickly calculate totals.* The formula uses the SUM() function to add together the values in the range B4:B8.

Think about the formula that would work in cell C9 (the total sales for February). It would be: **=SUM(C4:C8)**. Similarly the formula that would work in cell D9 (the total sales for March) would be **=SUM(D4:D8)**.

As we move to the right, all that is needed is to increment the letter for each cell reference in the formula and we'll get the right answer every time.

AutoFill is very clever and realizes this. When we AutoFill a cell containing a formula to the right, AutoFill increments the letters in each cell reference.

*Most of the time* that is exactly what we want.

Later, in *Lesson 3-12: Understand absolute and relative cell references*, and *Lesson 3-13: Understand mixed cell references* you'll learn how to fine-tune the way in which AutoFill adjusts cell references. This will allow you to implement some more advanced AutoFill techniques.

- 3 AutoFill cell B9 to the right as far as cell D9.

You learned how to do this in: *Lesson 2-14: Use AutoFill for text and numeric series.*

You may see a row of hashes in Cell C9. This is because the value may be too wide to fit in the cell. If this is the case, AutoFit the column using the skills learned in: *Lesson 2-9: Re-size rows and columns.*

The correct answers for *Feb* and *Mar* sales are shown on the worksheet. Click on the *Feb* total cell (C9) and look at the formula in the formula bar.

| C9                   |  |         |         |         |
|----------------------|--|---------|---------|---------|
| : X ✓ fx =SUM(C4:C8) |  |         |         |         |
|                      | A  | B       | C       | D       |
| 1                    | Sales and Profit Report - First Quarter 2008 |         |         |         |
| 2                    |  |         |         |         |
| 3                    |  | Jan     | Feb     | Mar     |
| 4                    | New York                                     | 22,000  | 29,000  | 19,000  |
| 5                    | Los Angeles                                  | 42,000  | 39,000  | 43,000  |
| 6                    | London                                       | 18,000  | 20,000  | 22,000  |
| 7                    | Paris  | 35,000  | 26,000  | 31,000  |
| 8                    | Munich                                       | 12,000  | 15,000  | 13,000  |
| 9                    | Sales  | 129,000 | 129,000 | 128,000 |

You can see that AutoFill has done its job perfectly, creating the sum of the values in cells C4:C8. Our five branches have sold exactly the same amount in both January and February, but a little less in March.

4 Consider the formula in cell E4.

Click onto cell E4 and view the formula displayed in the formula bar.

| E4                       |  |        |        |        |         |
|--------------------------|--|--------|--------|--------|---------|
| : X ✓ fx =AVERAGE(B4:D4) |  |        |        |        |         |
|                          | A  | B      | C      | D      | E       |
| 1                        | Sales and Profit Report - First Quarter 2008 |        |        |        |         |
| 2                        |  |        |        |        |         |
| 3                        |  | Jan    | Feb    | Mar    | Average |
| 4                        | New York                                     | 22,000 | 29,000 | 19,000 | 23,333  |
| 5                        | Los Angeles                                  | 42,000 | 39,000 | 43,000 |         |
| 6                        | London                                       | 18,000 | 20,000 | 22,000 |         |

The formula is **=AVERAGE(B4:D4)**. AutoSum created it for us in: *Lesson 2-11: Use AutoSum to quickly calculate averages.*

Think about the formula that would work in cell E5 (the average sales for Los Angeles). It would be: **=AVERAGE(B5:D5)**. Similarly the formula that would work in cell E6 (the average sales for London) would be **=AVERAGE(B6:D6)**.

As we move downward, all that is needed is to increment the number for each cell reference in the formula. This is exactly what AutoFill will do.

| E       | F       |
|---------|---------|
| Average | Maximum |
| 23,333  | 29,000  |
| 41,333  | 43,000  |
| 20,000  | 22,000  |
| 30,667  | 35,000  |
| 13,333  | 15,000  |

5 AutoFill cell E4 down to E8 to see the Average sales for each branch.

6 AutoFill cell F4 down to F8 to view the maximum sales for each branch.

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