

ECDL

FOR MICROSOFT OFFICE 2000®

*The Complete Coursebook
for Syllabus 3*

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Section 4.2: Arithmetic with Excel

In This Section

Prepare to be impressed. In Section 4.1 you learnt the names for the important parts of an Excel worksheet, and practised the simple operations of entering numbers, text and cell references into cells.

Now you have the basics you need to discover the power of spreadsheets in this Section.

You will very quickly discover why people who work with numbers – such as accountants, statisticians, engineers and project managers – rely on spreadsheets to perform tedious calculations quickly, easily and accurately.

In the practical Exercises you will use fewer than a dozen numbers. These simple examples differ from the multi-page financial reports of a large corporation in size only. The principles are the same. Learn the principles here in Section 4.2 and you will never meet an amount of data too large or too complex for you to master with your spreadsheet skills.

New Skills

At the end of this Section you should be able to:

- Explain what an Excel formula is, and name its components
- Use Excel formulas to add, subtract, multiply and divide numbers
- Apply the rules of arithmetic to calculations in Excel
- Recognise Excel error messages
- Use Excel's Zoom feature to enlarge and reduce the worksheet display
- Save an Excel workbook to a disk.

New Words

At the end of this Section you should be able to explain the following terms.

- | | |
|----------------------|------------|
| • Formula | • Argument |
| • Calculated cells | • Operator |
| • Non-adjacent cells | • Constant |

Formulas in Excel



To type a plus (+) sign, hold down the SHIFT key and press the EQUALS (=)

In Section 4.1 you learnt how to enter numbers, text and cell references into worksheet cells. Now it's time to discover a fourth type of cell entry, called a calculation.

Calculations are the reason that you enter numbers to cells, because calculations enable you to perform arithmetic – addition, subtraction, multiplication and division – on your entered numbers.

Excel accepts two kinds of calculations formulas and functions. This Section 4.2 shows you how to perform calculations using formulas. You will learn about functions in Section 4.3.

Exercise 4.11: Adding Two Numbers with an Excel Formula

- 1) Open the workbook that you saved in Exercise 4.8. If cells B2 and B3 do not contain the word 'Add' and the number 1275, enter that data now.
- 2) Click on B4, and type the number:
25
- 3) Press ENTER.
- 4) Click on B5, and type:
=B3+B4
- 5) Press ENTER.

The diagram illustrates the result of entering a formula in Excel. It shows two side-by-side grid representations of a worksheet. An arrow points from the left grid to the right grid, indicating a transition. In the left grid, cell B2 contains 'Add', B3 contains '1275', B4 contains '25', and B5 contains the formula '=B3+B4'. In the right grid, cell B2 contains 'Add', B3 contains '1275', B4 contains '25', and B5 contains the result '1300'.

Excel displays in B5 the sum of the contents of the two cells B3 and B4.

Congratulations! You have performed your first calculation in Excel.

Formula and Arguments

Formula and arguments are two words you will meet a lot when learning about spreadsheets. So it's important that you understand what they mean.

Formula

An equation that performs operations such as addition, subtraction, multiplication or division on data that is stored in a worksheet.

In Exercise 4.11 the formula you used was =B3+B4. Note the following about formulas:

- Always begin formulas with the equal to (=) sign.
- Always press ENTER to confirm your formula.

The components of a formula are called arguments in the time =B3+B4, the arguments are B3 and B4. Both are cell references. As you will see, you can also use numbers as arguments.

Argument

The inputs to a calculation that generate the result.

Next, let's perform three other arithmetic operations using Excel formulas: subtraction, multiplication and division.

Exercise 4.12: Subtracting with Excel



Excel's Subtraction key is the HYPHEN (-) key, to the left of the EQUALS key.

- 1) In cell D2, enter the word Subtract
(That is, type the word and press ENTER.)
- 2) In cell D3, enter the number 1275
- 3) In cell D4, enter the number 25
- 4) In cell D5, enter the formula:
=D3-D4
(That is, type the formula and press ENTER.)

Excel displays in D5 the result of subtracting the content of D4 from the content of D3.

D
Subtract
1275
25
1250



Excel's Multiplication key is the ASTERISK (*) key, typed by holding down the SHIFT key and press the 8 key.

Exercise 4.13: Multiplying with Excel

- 1) In cell F2, enter the word Multiply.
- 2) In cell F3, enter the number 1275
- 3) In cell F4, enter the number 25.
- 4) In cell F5, enter the formula:
=F3*F4

Excel displays in F5 the result of multiplying the content of F3 by the content of F4.

F
Multiply
1275
25
31875



Excel's Division key is the FORWARD SLASH (/) key, to the right of the FULL STOP (.) key.

Exercise 4.14 Dividing with Excel

- 1) In cell H2, enter the word Divide.
- 2) In cell H3, enter the number 1275.
- 3) In cell H4, enter the number 25.
- 4) In cell H5, enter the formula:
=H3/H4

Excel displays in H5 the result of dividing the content of H3 by the content of H4.

H
Divide
1275
25
51

Calculated Cells

In Exercises 4.11 to 4.14, the cells B3 and B4, D3 and D4, F3 and F4, and H3 and H4 each:

- Contain a number, and
- Display a number

In other words, what they contain and what they display are the same.

Cells B5, D5, F5 and H5, however, contain one thing (a formula) but display another (a number). These are examples of calculated cells.

Calculated Cell

A cell that contains a calculation but displays only the result of that calculation.

You can think of a calculated cell as an ‘answer cell’.

In addition to arguments, the other type of component in a formula is the operator.

Operators

*Symbols that specify the type of calculation you want to perform on the arguments of a formula. Excels four main arithmetic operators are +, -, * and /.*

Excel offers other, more complex, operators that are beyond the scope of this ECDL Spreadsheet Module.

Adding Down and Across

8		1234
9		4532
10		5693
11		3512
12		239
13	Total	15210
14		
15		

Two of the most common arithmetic operations in spreadsheets are the addition of numbers that are arranged in vertical or horizontal lists. Exercises 4.15 and 4.16 provide examples of each.

Exercise 4.15: Adding a Vertical list of Numbers

- 1) In cells B8, B9, B10, B11 and B12, enter the numbers 1234, 4532 5693, 3512 and 239.
- 2) In cell A13, enter the word
Total
- 3) In cell B13, enter the formula:
 $=B8+B9+B10+B11+B12$

Excel displays in B13 the result of adding the specified cells.