Lesson 3-1: Understand precedence rules and use the Evaluate feature

Here are Excel’s precedence rules:

<table>
<thead>
<tr>
<th>Operator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parenthesis (brackets)</td>
<td>Any expression in brackets is always evaluated first.</td>
</tr>
<tr>
<td></td>
<td>((6+2)\times3=24)</td>
</tr>
<tr>
<td>Exponent</td>
<td>Exponents are always evaluated next.</td>
</tr>
<tr>
<td></td>
<td>Exponents tend to be used in engineering/scientific scenarios and are rarely seen in accounting scenarios.</td>
</tr>
<tr>
<td></td>
<td>((1+1)\times6^2=72)</td>
</tr>
<tr>
<td>Multiply and Divide</td>
<td>Multiplication and Division operators have the same precedence and are evaluated from left to right.</td>
</tr>
<tr>
<td>Add and Subtract</td>
<td>Addition and Subtraction operators have the same precedence and are evaluated from left to right.</td>
</tr>
</tbody>
</table>

If you only ever work with accounting scenarios, all you really need to remember is:

- Brackets are evaluated first.
- Multiplication and Division are evaluated next.
- Addition and Subtraction are evaluated last.

1. Open Payroll-1 from your sample files folder.

This worksheet contains some simple formulas required to compute Net Pay from Hours Worked (see Payroll Rules grab on facing page).

Most tax regimes have more complicated rules than those defined in this simple example. Employees are paid the same hourly rate for all hours worked. A different percentage of gross pay is then deducted for Tax, Social Security and Pension contributions.

2. Evaluate the formula in cell B17.

Cell B17 contains the simple formula:

![fe] =B15*B4

There’s really not much that can go wrong with such a simple formula, but let’s see how it works using Excel’s evaluation feature.

1. Click on cell B17.
2. Click: Formulas→Formula Auditing→Evaluate Formula.
The Evaluate Formula dialog appears. You can see that the first part of the formula that will be evaluated is B15. This is indicated by an underline:

3. Click the Step In button. This will show the formula behind cell B15:

4. Click the Step Out button.

The value in cell B15 now replaces the cell reference:

5. Click the Evaluate button. The value in cell B4 now replaces the cell reference:

6. Click the Evaluate button again. You can now see the result of the evaluation:

The Evaluate button has now changed its caption to Restart. If you wanted to, you could click this button to start the evaluation process all over again.

7. Click the Close button.

Evaluate the formula in cell B23.

To better illustrate the Evaluate feature, a formula that uses a rather long winded way of calculating Net Pay has been inserted into cell B23:

Because of the rules of precedence, the formula works correctly. It could also have been written with parentheses like this:

The parentheses are not needed because the precedence rules state that multiplication happens before subtraction. I still prefer the formula with redundant parentheses (see sidebar).

4. Save your work as Payroll-2.