Performing Simple Calculations Using the Status Bar

If you need to see a simple calculation, such as a total, but do not need it to be a part of your spreadsheet, all you need is your Status Bar. To open the Status Bar, make sure there is a checkmark next to the Status Bar option in the View menu.

Highlight the cells you wish to calculate and you will see the sum of the cells in the Status Bar at the bottom of the screen.

If you want something other than the sum, right-click the formula in the Status Bar and choose a different calculation.
Order of Math Operations

When working with functions, it is important to understand how Excel will process the equation. The way the function is entered will determine the outcome. Remember this mnemonic device from algebra?

Please Excuse My Dear Aunt Sally

which stands for

Parentheses Exponents Multiplication Division Addition Subtraction

For example, $4 + 3 \times 2$ will equal 10, while $(4 + 3) \times 2$ will equal 14.

Using Cell References

The cell reference is how Excel understands where a piece of data is located. The default cell reference is the cell’s column and row.

Relative versus Absolute References

Relative references

A relative cell reference in a formula, such as A1, is based on the relative position of the cell that contains the formula and the cell the reference refers to. If the position of the cell that contains the formula changes, the reference is changed. If you copy the formula across rows or down columns, the reference automatically adjusts.
**Absolute references**

An absolute cell reference in a formula, such as $A$1, always refer to a cell in a specific location. If the position of the cell that contains the formula changes, the absolute reference remains the same. If you copy the formula across rows or down columns, the absolute reference does not adjust.

**Mixed references**

A mixed reference has either an absolute column and relative row, or absolute row and relative column. An absolute column reference takes the form $A1, $B1, and so on. An absolute row reference takes the form $A1, B$1, and so on. If the position of the cell that contains the formula changes, the relative reference is changed, and the absolute reference does not change. If you copy the formula across rows or down columns, the relative reference automatically adjusts, and the absolute reference does not adjust.

**Naming Data Ranges**

Naming groups of cells can make formulas easier to create, especially if you will be using those ranges of cells more than once or in calculations on different sheets of the workbook.

To name a group of cells, highlight the cells and type a name for them in the name box to the left of the formula bar.
To create named ranges semi-automatically, highlight the range of cells, including the labels you want to use to name the cells, and go to Insert… Names… Create… on the menu bar. Select the location or locations of the names and Excel will create the names for you.

**Entering Formulas**

Formulas always begin with an equal sign (=). Any text used in a formula must be enclosed in quotation marks (“ “).

**Formulas Using Text**

One useful formula working with text is concatenation, combining the contents of two or more cells into one. To enter the formula manually, surround spaces, punctuation and text with quotation marks and separate the elements of the formula with an ampersand (&).
Excel has a built-in formula for concatenation. Click the Insert Function button (F2) and choose Concatenate from the Text category list.

Enter the cell references and any additional text, such as spaces and punctuation, in the cells.

Once you click OK, you will see that the resulting value is the same as manually entering the formula as we did above.
AutoSum

The most commonly used functions, such as Sum and Average, can be accessed through a single button on the toolbar. First select the cell you want the function in, then click the AutoSum button for a total or choose one of the other functions by clicking the pull-down arrow. Excel will automatically create the formula based on the nearest range of cells to the left of or above the selected cell.

Count Functions

There are a variety of Count functions. Count will count cells containing numerical values, CountA counts cells with text values, CountBlank counts how many cells are empty, and CountIf will count cells that meet a certain criteria.

If Functions

If functions evaluate an expression and return a True or False value. You can set the return value or even nest another If function to further evaluate the expression.

The syntax for the If function is If(expression, value if true, value if false). Here is an example of an If function that evaluates salaries. Using a nested If statement, it will return either “poor”, “rich”, or an empty cell.
**Date Functions**

One simple Date formula you can do is determining the number of days between two dates. This is just a matter of subtracting one date from the other.

The result may be viewed as a date code by Excel. To reformat the cell to show the result as a number instead of a date, right-click the cell or go to the Format menu and choose Format Cells. On the Number tab, choose General.
There are a number of Date functions available in the Insert Function Wizard. One interesting example is the NETWORKDAYS function, with finds the number of workdays between two dates.

To get an accurate number of work days, enter any holidays in a separate area of the spreadsheet. Saturdays and Sundays are automatically deducted in the calculation.
**Payment Function**

The Payment function can be found in the set of financial functions.

You can set up the required information in your spreadsheet, or enter the information directly in the formula.
VLookup

VLookup stands for “vertical lookup” because the function will look vertically down a list to find a matching value, then retrieve the intended value from that row, or record. The less commonly used HLookup will search across columns for a match, then retrieve the value from that column.

The first step to using VLookup is to have a list of values, with the identifying entry in the left column (Column A), and sort the list by Column A.

For this example, let’s use VLookup to find the hire date for determining seniority. We’re going to use the Function Wizard to build the formula.
Our Lookup Value is the employee’s name in Column A.

The Table Array is our list of employees and employment data, which we have on a separate sheet. The hire date happens to be in the 2nd column of that data range.

In this example, we will want “false” in the Range Lookup field so that we will find an exact match. If we were looking at numbers, such as a list of bonus ranges or income levels, we would use “true” to find the closest match.

Copying the formula down the cells will look up each person’s name and retrieve the hire date.
# Tracing Errors in Formulas

Below are the error values Excel reports when there is a problem with a formula.

<table>
<thead>
<tr>
<th>Error Value</th>
<th>Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>#DIV/0!</td>
<td>Occurs when a number is divided by zero (0).</td>
</tr>
<tr>
<td>#NAME?</td>
<td>Occurs when Microsoft Excel doesn't recognize text in a formula.</td>
</tr>
<tr>
<td>#NULL!</td>
<td>Occurs when you specify an intersection of two areas that do not intersect. The intersection operator is a space between references.</td>
</tr>
<tr>
<td>#N/A</td>
<td>Occurs when a value is not available to a function or formula.</td>
</tr>
<tr>
<td>#NUM!</td>
<td>Occurs with invalid numeric values in a formula or function.</td>
</tr>
<tr>
<td>#REF!</td>
<td>Occurs when a cell reference is not valid.</td>
</tr>
<tr>
<td>#VALUE!</td>
<td>Occurs when the wrong type of argument or operand is used.</td>
</tr>
</tbody>
</table>

You can have Excel help you trace your formula through Tools… Formula Auditing…
Precedents are those cells whose values are used in the formula in the selected cell.

Dependents are those cells that use the contents of the selected cell.