# Week 2: Toolbox

## Keyboard Shortcuts:

**Windows Shortcuts:** Microsoft Office Support pages | **Mac Shortcuts:** Microsoft Office Support pages

**CTRL + Z** — Undo previous action

**F4 (fn + F4 / CMD + T)** — Cycle through all 4 types of cell references. (Absolute, Mixed x2, Relative)

**CTRL + ~ (CTRL + `)** — Show formulas in the worksheet

**SHIFT + F3 (CTRL + A)** — Open Formula Builder/ Function Wizard

**CTRL + PgUp (CMD + PgUp)** — Go to the previous sheet.

**CTRL + PgDn (CMD + PgDn)** — Go to the next sheet.

## Excel Terminology

**Formula**

A formula is entered into a cell to perform a calculation. A formula always starts with an equal sign (=) and once committed (press Enter), the result is displayed in that cell. At its most basic, formulas can be simple mathematical calculations with values much like you would type into a calculator. An example of a formula would be: **=A1+B1** which would take whatever value was entered into cell **A1** and add it to the value that was typed into **B1**. After typing the formula and pressing the Enter key, the resulting value will be displayed in the cell in which you entered the formula.

**Function**

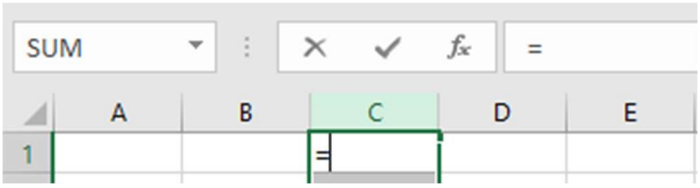
A function is what we referred to in the videos a 'mini-program' that you can use to make more complex calculations. Functions are used inside formulas and therefore, you need to start with an equal sign (=). Formulas operate with cell references and are very powerful. One commonly used

function is **SUM**, which will add up the values in a defined range. The function: **=SUM(A1:A12)** will sum up all values contained in cells **A1***through to* **A12** and return the result once you commit the function by pressing the ENTER key.

**Formula Bar**


The formula bar is located underneath the ribbon. The first edit line shows cell reference of the currently active cell - this is called the Name Box. The second edit line provides space to enter cell content and a helper tool to enter formulas:

Once you enter an equal sign into the active cell, frequently used functions appear in the Name Box on the left - a drop-down menu offers more options.

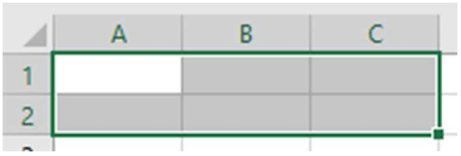



**Value**

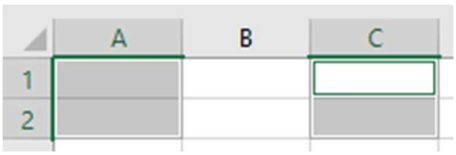
Values are numeric data that is entered into a cell. When text is entered into a cell without being assigned a number format, we refer to them as labels. When data is formatted as a value type, it can be referred to in formulas and functions and used in calculations.

**Range**

A range refers to two or more cells. When these cells are together, we call this an adjacent range. Consider this example:



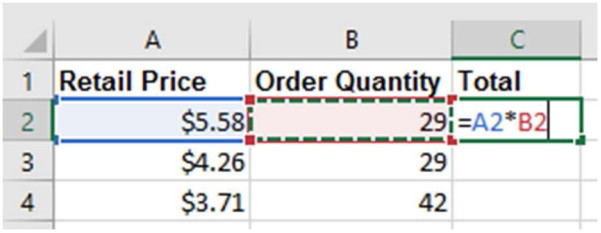

This adjacent range covers all the cells from **A1** through to **C2** - or in Excel syntax this is written as **A1:C2**. The colon (:) basically stands for 'through to'. Whenever we want to define a range of cells that are not all in one place, we talk about non-adjacent ranges:




This range includes cells **A1:A2** and **C1:C2**. In Excel syntax this is written as **A1:A2,C1:C2**.

**Reference, relative**

A relative cell reference is one that changes relative to the direction in which it is copied. Consider this example:




**A2** and **B2** are relative cell references. When we copy the formula in **C2** downwards into **C3** and **C4** with the fill handle, then Excel will assume that you want to conduct the same calculation in rows 3 and 4 as you did in row 2. In other words, Excel will perform the calculation **A3*B3** in **C3** and **A4*B4** in **C4**. Excel effectively updates the row number in each of the cell references for every row that you copy your formula downwards.

**Reference, absolute**

Or, as we like to fondly call it, the dollar thingy. A cell reference is absolute when it does not change whenever it is copied. To make a cell reference absolute, you must include a $ before each element of the cell reference: **$A$1**. This can be a bit cumbersome. The keyboard shortcut to turn a cell reference into an absolute cell reference is to press F4.

## Ninja Tip for the Week

**Order of basic mathematical operations**

Calculations in Excel follow the general mathematical rules for calculations, in other words, Multiplication (*) and Division (/) come before Addition (+) and Subtraction (-). So, when you are using these arithmetic operators in your calculations, you need to keep these general rules in mind.

Example: **=3+4*5**

Excel reads the formula from left to right, so one might assume that it adds 3 and 4 together before it multiplies the result by 5. However, as multiplication takes precedence over addition, Excel will calculate 3 plus the result of 4 multiplied by 5. If you wanted Excel to choose the first path, you need to 'tell' this to Excel with the help of parentheses. The formula should look like this: **=(3+4)*5**