Getting Started with Microsoft Excel

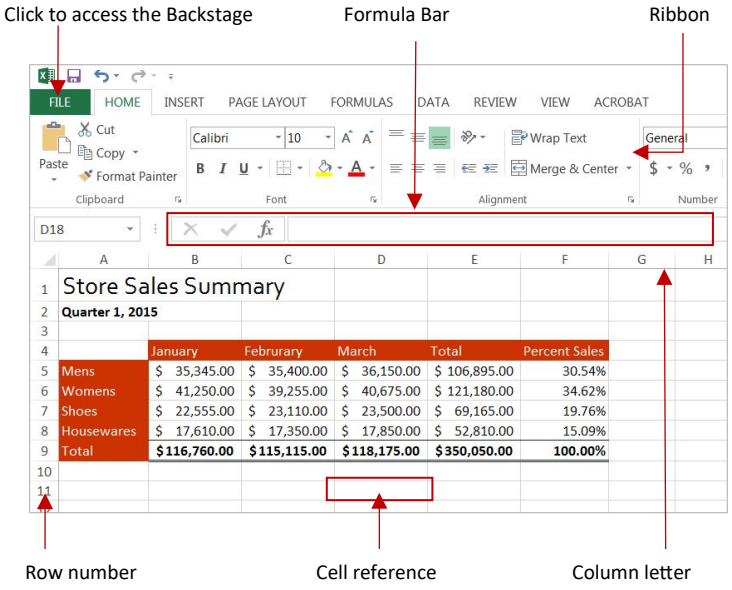
Excel is an electronic spreadsheet application that allows you to store, calculate, display, and analyze data.

Building a spreadsheet: Four Key Steps

Four key steps help you build an effective spreadsheet, and also help you understand spreadsheets built by others:

Labels	*Identify the data*
Values	*Quantify the data*
Formulas	*Calculate the data*
Formats	*Present the data*

In the example shown at right, labels are in column A and row 4; values are in the cell range B5:D8; formulas are in row 9 and column F; formats are the cell fill color, the bold font, and the number formats.

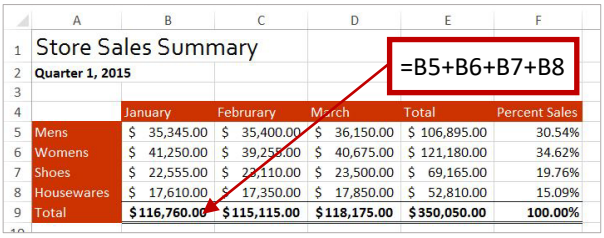


Formulas

A formula is a mathematical statement that performs a calculation on values stored in your spreadsheet.

To create a formula:

1. Click on the cell that will store the formula results.
2. Type an equals sign (=).
3. Click on a cell that contains a value.
4. Type an operator.
5. Continue with steps 3 and 4 above until all cell values you need are included in your formula.
6. Press the **Enter** key.



Arithmetic operators allow you to perform math calculations. When you use a formula, Excel follows an *Order of Operations* to calculate the answer. (You may have memorized this order in school as, "Please Excuse My Dear Aunt Sally").

Operators		Order of Operations
+	Addition	Parentheses
-	Subtraction	Exponentials
*	Multiplication	Multiplication
/	Division	Division
^	Exponents	Addition
%	Percent	Subtraction
		"Please Excuse My Dear Aunt Sally"

Functions

A *function* is a pre-built formula that helps you build complex calculations. For example, you could add four numbers using =B5+B6+B7+B8, but also using the function =SUM(B5:B8).

To insert a function:

1. Click on the cell that will store the formula results.
2. On the **Ribbon**, click the **Formulas** tab, and in the **Function Library** group, click the name of the function family.
3. From the drop-down menu, click on the function.
4. Type or select the cell values you need.
5. Click **OK**.

Some frequently-used functions

SUM	Calculates a total	=SUM(B5:B8)
AVERAGE	Calculates an average	=AVERAGE(B5:B8)
MIN	Finds the lowest value	=MIN(B5:B8)
MAX	Finds the highest value	=MAX(B5:B8)
COUNT	Counts all cells that contain a number	=COUNT(B4:B9)
COUNTA	Counts all cells that aren't blank	=COUNTA(B5:B9)

TIP: The AutoSum menu contains many of these functions, and is a fast way to insert them *(See "AutoSum menu"on the next page*).

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continued

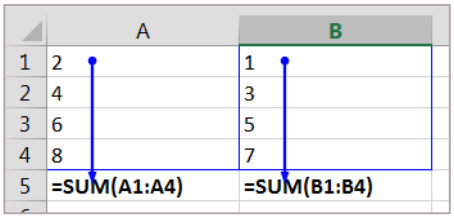
Reusing formulas

A *cell* is the intersection of a column and a row. A *cell reference* is a location on the spreadsheet (an example is cell A2).

To reuse a formula stored in a cell, copy the formula and then paste it into another cell location. Excel will automatically shift the cell references and calculate the answer using the new values it finds. This process is known as *relative cell referencing*.

There are times you will need to use the same cell reference(s) when you reuse a formula (an example is when you are calculating percentages). To do this, type a dollar sign (**$**) in front of both the column letter and the row number. Now the cell reference will always be used no matter where you copy and paste the formula. This process is called *absolute cell referencing*.

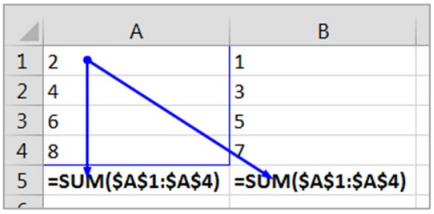
Relative references



	A	B
1	2	1
2	4	3
3	6	5
4	8	7
5	=SUM(A1:A4)	=SUM(B1:B4)

When the formula in cell A5 is copied to cell B5, the cell references shift. Each formula uses a different range of values.

Absolute references



	A	B
1	2	1
2	4	3
3	6	5
4	8	7
5	=SUM($A$1:$A$4)	=SUM($A$1:$A$4)

When the formula in cell A5 is copied to cell B5, the cell references do not shift. Both formulas use the same range of values.

TIP: when selecting a cell, press the F4 function key to change the cell reference from relative to absolute.

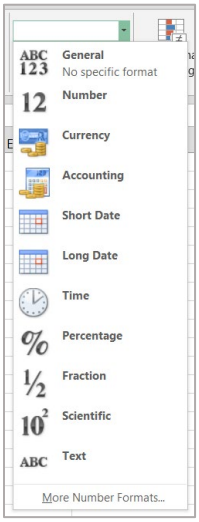
Basic formatting

A *cell format* is the choice of colors, fonts, and number formatting you apply to a cell to make values understandable and the spreadsheet presentable.

To format cells:

1. Select the cell(s) you want to format.
2. On the ribbon, click the **Home** tab.
   - For number formats, click the menu in the **Numbers** group.
   - For text appearance, choose a command in the **Font** group.
   - To format cells quickly, use the Gallery in the **Styles** group.

TIP: *Live Preview* shows you how a cell will appear before you click on the formatting option. Move your mouse over the style to see the preview on your spreadsheet.



AutoSum menu

AutoSum is a feature that adds up a range of values stored in a column or row. To use it:

1. Click the cell immediately next to your range.
2. On the **Formulas** tab, click the **AutoSum** button.
3. Press **Enter**.

Conditional formatting

Conditional formatting formats the cell(s) automatically, based on a set of predefined numeric rules. (These rules can also be customized by the user.) When the values in the cells change, the formats will change.

To apply basic conditional formatting:

1. Select the cell(s) to be formatted based on a rule.
2. On the **Ribbon**, click the **Home** tab, and in the **Styles** group, click **Conditional Formatting**.
3. From the menu, mouse over the rule type and click on the condition you want to apply.
4. Depending on the condition, define the value(s) and the cell format(s)
5. Click **OK**.