

## Microsoft Excel 2010 Handout

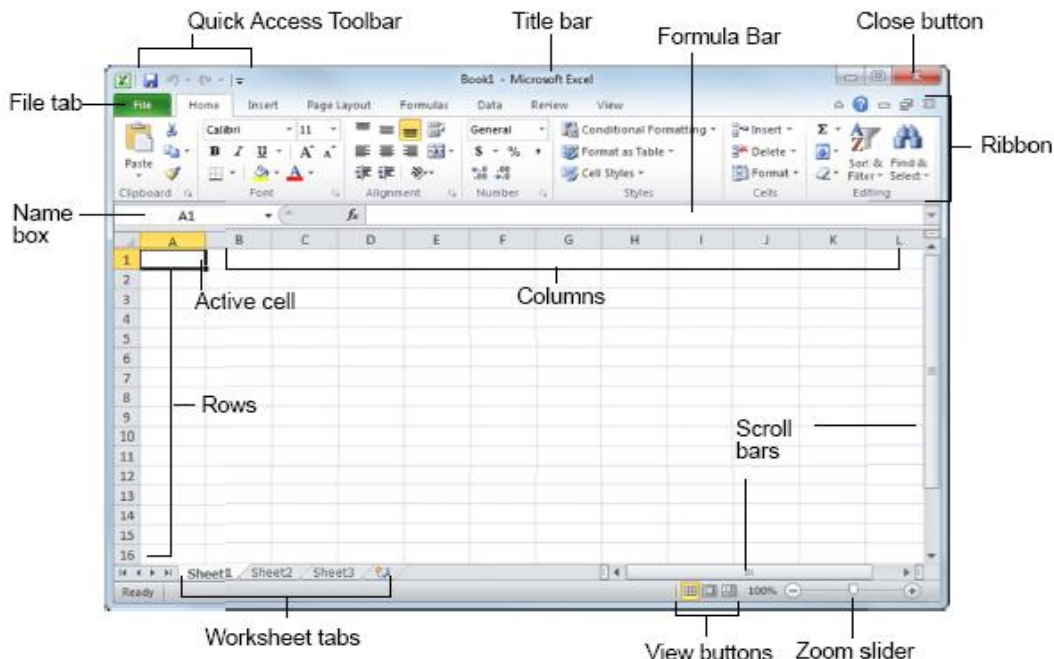
Excel is an electronic spreadsheet program you can use to enter and organize data, and perform a wide variety of number crunching tasks. Excel helps you organize and track large quantities of data. You can use the program to create worksheets, databases, charts; budgets, work with taxes, record student grades and attendance, or list products you sell.

The uses of Excel really are endless. Most people use Excel primarily to accomplish math related tasks, and supplying text labels for the numbers you enter provides meaning for those tasks.

To open Excel, go to Start >> All Programs >> Microsoft Office >> Microsoft Office Excel 2010

The main window for Excel appears. Let's look at the Excel screen; you see a worksheet area, a big empty grid with letters across the top and numbers down the left side, and there are tabs at the bottom named **Sheet1**, **Sheet2**, **Sheet3**, and so on. Excel spreadsheet files are called **Workbooks**. Think of a workbook as a three-ring binder with organized sheets of documents inside. Each time you open Excel, you see a new workbook named **Book 1** showing the first three worksheets out of the many worksheets available to use.

At the top of the Window you will see:



**Title bar** - displays the name of the workbook and the name of the program.

**FILE button** – opens a menu containing commands related to file operations such as **Save** and **Print**.

**Quick Access Toolbar** – contains such buttons like save, undo, and redo. You can also add buttons to this toolbar, such as print preview.

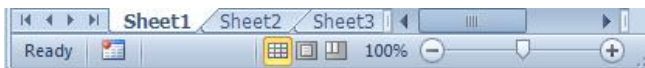
**Ribbon** – The creation of Ribbon functionality fundamentally changed the way you work in Excel compared to earlier versions of the program starting with Excel 2007. The program is made up of different tabs identifying what each ribbon does. Each tab is organized into related **Ribbon Groups** with commands and tasks specific to the work you do in Excel. For example, on the **Home Ribbon**, commands to edit cells are grouped together in the **Editing Group**, and commands to work with cells are in the **Cells Group**.

**Formula Bar** – is made up of three parts:

- **Name box** is on the left edge showing the cell location of the cursor. The name box will also change to display the **Cell Contents** the information that is currently stored in the selected cell.
- **Function Wizard** is in the middle part which contains buttons to help you enter information: the **Cancel, Enter and Insert Function** buttons (these appear once you start entering data into a cell)



- **Status bar** – located at the bottom of the window and displays Excel's current mode, such as **Ready or Edit**, and identifies any special keys you press, such as Caps Lock. It also contains the different **View** buttons to switch how you view the worksheet, and a **Zoom control**.

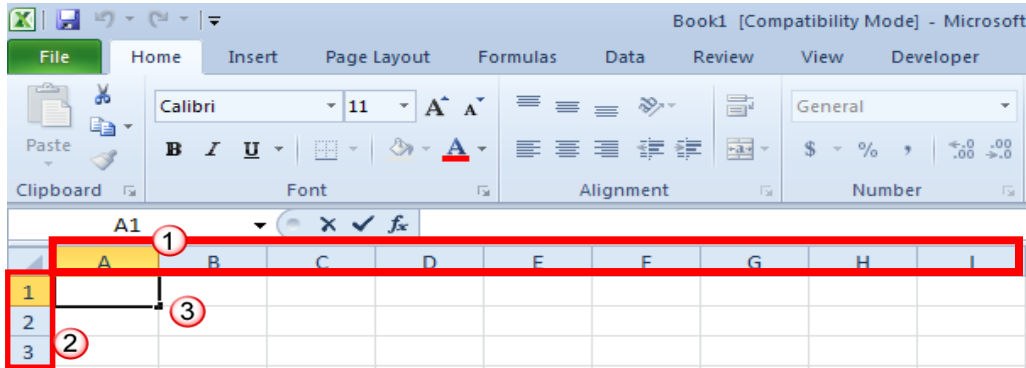


- **Shortcut Menu** – appears when you right click on an area of the page.
- **Mini Toolbar** —The mini toolbar appears whenever you select text. Although this may happen rarely when you're editing cells in Excel, it does happen frequently when you are working with charts, text boxes, and so on. The Mini toolbar offers quick access to font, size, bold, italics, alignment, color, indenting, and bullets formatting without switching to the **Home Tab**.
- The **Mini Toolbar** and the **Shortcut menu** always appear together when you work with shapes, text and cells containing text or numbers.

## 1. Creating a Workbook

Click the **Microsoft Office Button**  at the upper left. Then click **New**. In the **New**

**Workbook** window, click **Blank workbook**.



Worksheets are divided into columns, rows, and cells. **Rows** ① are horizontally from left to right. **Columns** ② are vertical from top to bottom. A **cell** ③ is the space where one column and one row meet. The first 26 columns have the letters from A through Z. Each worksheet contains 16,384 columns in all, so after Z the letters begin again in pairs, AA through AZ with the last column of the worksheet being IV. Each row also has a heading. Row headings are numbers, from 1 through 1,048,576.

The headings combine to form the cell address, also called the **cell reference**.

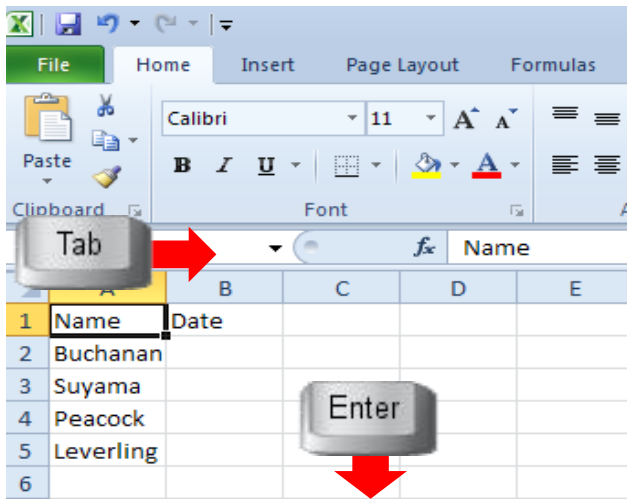
The first cell in the upper-left corner of the worksheet is outlined in black, ③ indicating that any data you enter will go there.

You can enter data wherever you may like by clicking any one cell on the worksheet in order to select that cell location. For example, if you select a cell in column C on row 5, the headings on column C and row 5 will be highlighted, and the cell is outlined in black. That cell is known as cell C5, which is referred to as the **Cell Reference**. The cell reference of the active cell also appears in the **Name Box** in the upper-left corner of the worksheet.

Not all of these indicators are too important when you're using the first section of cells at the very top left corner of a worksheet. But when you work further and further down or across the worksheet, they can really help you navigating where your formulas and number are located. Keep in mind there are **17,179,869,184 cells** to work with on any single worksheet out of the **255 individual worksheets** that make up one workbook that creates one Excel file. Therefore, you can easily get lost without the cell reference to tell you where you are.

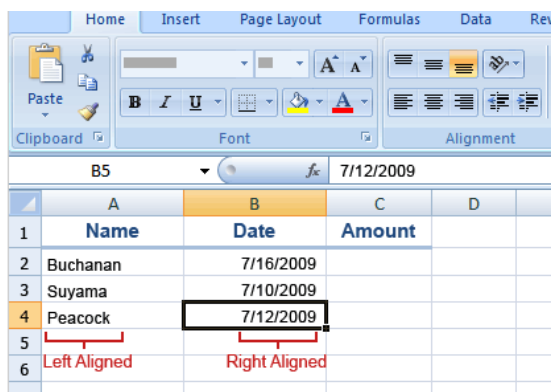
**You can enter two basic kinds of data into a worksheet cells: text and numbers, which are called values. Values also include formulas.**

We will create a list of sales people names. The list will also have the dates of sales, with their amounts. So you will need these column titles: Name, Date, and Amount.



Click on cell A1 and type Name press Tab to move to cell B1 and type Date, press Tab again and type Amount in cell C1. After you typed the column titles, you then click in cell A2 to begin typing the names of the salespeople. Type the first name, and then press **ENTER** to move the selection **down** one cell, type the next name and so on.

To enter a date in column B, the Date column, you should **use a slash or a hyphen** to separate the parts: 7/16/2009 or 16-July-2009. Excel will recognize this as a date.



Excel aligns text on the left side of cells, but it aligns dates on the right side of cells.

1. To enter today's date, press **CTRL and the Semicolon (;)** together.
2. To enter the current time, press **CTRL and SHIFT and the Semicolon** all at once.
3. We will enter the sales amounts in column C.
4. You can either type the dollar sign (\$) or click the (\$), on the Ribbon Number Group followed by the amount in the cell.

	A	B	C	D
1	<b>Name</b>	<b>Date</b>	<b>Amount</b>	
2	Buchanan	7/16/2009	\$440.00	
3	Suyama	7/10/2009	\$1,863.40	
4	Peacock	7/12/2009	\$1,552.60	
5				
6				

- To enter **fractions**, leave a space between the whole number and the fraction. For example, **1 [space] 1/8**.
- To enter a **fraction only**, enter a zero first. For example, **0 [space] 1/4**. If you enter 1/4 without the zero, Excel will interpret the number as a date, January 4.
- If you type **(100)** to indicate a **negative number with parentheses**, Excel will display the number as **-100** (Show students how on the right part of Excel screen)

You see that selecting a single cell is easy: you just click the cell. You can also select a range of cells.

A group of related cells in a worksheet is called a **range (a rectangular group of related cells)**. A range identified by a combination of two cell addresses: the address on the top of the range and the address at the bottom of the range. **A colon separates these two cell addresses**. For example, the range C2:C4 includes the cells C2, C3, C4. You can select a range of cells either down a column or across a row. Mostly selecting a range of cells together allows you to perform mathematical functions quickly.

To select a range of cells:

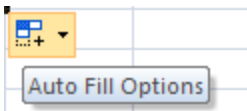
- Click the first cell in the range of cells you want to select.
- Click and drag across the cells that you want to include in the range.
- Release the mouse button.

### Data Entry with AutoFill

This feature helps you save the time when you use lists of common entries such as days of the week, months, and number series.


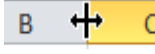


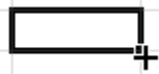
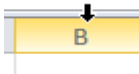
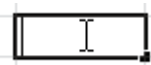
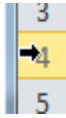
#### Autofill a text series:

- Type Monday, the first entry in the text series
- Click and drag the cell's **fill handle** (small square in the lower-right corner of the selector) across or down the number of cells that you want to fill. Your **cursor changes to plus sign**.
- Release the mouse button
- Autofill fills in the text series. An **Autofill smart tag** may appear offering additional options



### Autofill a number series:

- Type the first entry in the number series 125
- In an adjacent cell, type the next entry in the number series. 130
- Select both cells.
- Click and drag the cell's fill handle cross or down the number of cells that you want to fill.
- Release the mouse button.

Shape:	Used to:	Shape:	Used to:
	Select a cell or range		Resize column
	Drag a selection to new location. The pointer must be over the border of the selection to change to the Move shape.		Resize row
	Fill (copies values into the cells you drag across) or fill series (copies a pattern of values, such as filling in the days of the week or months of the year).		Select whole column
	Entering or editing data. The cursor (vertical line inside the cell) blinks.		Select whole row

### How to select a column or row:

- Move the mouse to the header of the column or row you want to select, note the cursor changes to an arrow
- Click the left mouse button for the column or row you selected
- To select multiple columns or rows, click the left mouse button then while holding it down drag the cursor across the column or row headings you want to select, they are now highlighted
- To select multiple noncontiguous columns or rows, press and hold **Ctrl** key while clicking column or row headings

### How to add a column and a row.


- Click the heading of the column to the right of where you want to insert a new column.
- Select the a column
- Click the **Insert** button from the **Cell Group** on the **Home** tab
- Click **Insert Sheet Columns** or right click the column and click **Insert**.
- Click the heading of the row below where you want to insert a new row.

- Select the row, click **Insert**, and click **Insert Sheets Rows**.

### To delete column or row:

- Click the heading of the column or the row
- Click the **Home** tab on the **Ribbon**
- Click the **Delete** button from the **Cells Group** on the right
- Click **Delete Sheet Columns** or **Delete Sheet Rows**

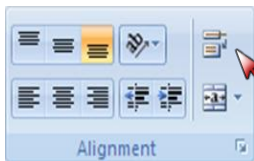
### Resize Columns, Rows and Cells


- Move the mouse pointer over the border of the column or row heading you want to resize. The pointer changes its shape to a plus size with horizontal arrows 
- Click and hold down the mouse button while dragging the border to the desired size
- Release the mouse button and the column or row has been resized

Click the B Column and increase the size to show the entire office title.

### Text Wrapping

By default, long lines of text you type into a cell remain on one line. You can turn on the cell's text –wrapping options to fit text into the cell without truncating the text.



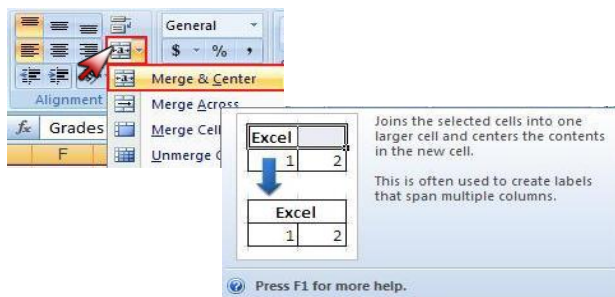
- Type some text into a row until it overflows into the next cell.
- On the Home Tab, in the Alignment Group, click the **Wrap Text** button  Excel applies text wrapping to the selection



### Center data across columns

You can center a title or heading across a range of cells in your worksheet.

- Type a heading at the top of your spreadsheet.
- Click the **Merge and Center** button under **Home** tab



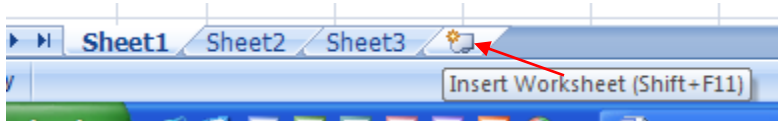
## Assign Worksheet names

- Double-click the worksheet tab you want to rename
- Excel highlights the current name
- You can also right-click the worksheet name and click **Rename**

Double- click the first tab and type in **Quarter 1**

## Add a Worksheet

Click the **Insert Worksheet** button, or right click a worksheet tab and click **Insert** to open the *Insert* dialog box.



## Copy a Worksheet

You may want to copy a worksheet to use as a starting point for data that is new, yet similar.

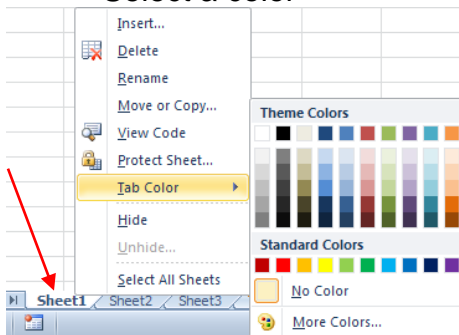
- Click the worksheet tab you want to copy
- Press and hold CTRL key
- Drag the worksheet copy to a new position in the list of worksheets
- Release the mouse button

Excel copies the worksheet as a new worksheet in the work book and name copy sequentially with a number, starting with 2

## Format the Worksheet Tab Color

Colors will help distinguish one worksheet from another

- Right-click the worksheet tab you want to format
- Click **Tab Color**
- Select a color

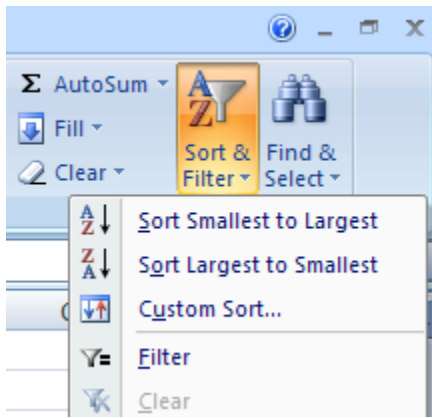


## Sort Data

You can sort Excel data as an ascending list from A to Z or smallest to largest and a descending list from Z to A or largest to smallest.

Click the range of cells want to sort

Click **Sort and Filter** under the **Home** tab

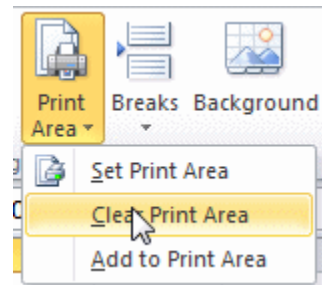


## Preview and Print

You can preview your worksheet by clicking **Print Layout** on the **View Ribbon** or from the Workbook view buttons in the lower right corner of the **Status Bar** on the Excel screen.

To get exact print preview:

- Click the **File** button
- Move the mouse down to **Print**
- Click **Print** (This page shows you the page preview along with printer settings)



## Insert a Page Break

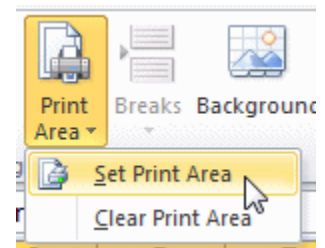
You can insert your own page breaks to control the placement of data on a printed page.

- Click the cell or row above which you want to insert a page brake
- Click the **Page Layout** tab on the Ribbon
- Click the **Breaks** button in the **Page Set Up Group**
- Click **Insert Page Break**

## Assign a Print Area

You can print only a certain portion of a worksheet:

- Select cells you want to define as the print area of the worksheet
- Click the **Page Layout** tab
- Click the **Print Area** button
- Click the **Set Print Area** command



By default gridlines you see on a worksheet do not print out with the cell data. You can turn the gridlines on for printing purposes; click the **Gridlines Print** check box on the **Page Layout** tab in **Sheet Options Group**

## Using Formulas and Functions

Formulas are equations that perform calculations on values in your worksheet.

You can use formulas to perform all kinds of calculations on your Excel data. All Excel formulas begin with equal sign, such as =2+2.

The mathematical operators used in Excel formulas are similar to the ones used in math class.

- Subtraction - minus sign ( - )
- Addition - plus sign ( + )
- Division - forward slash ( / )
- Multiplication - asterisk ( \* )
- Exponentiation - caret ( ^ )

You can enter formulas using either of two methods:

- Type the formula
- Use the mouse and click cells to include in the formula

We will reference values in cells by entering the cell name, also called cell reference.

## Exercise Worksheet #2

	A	B	C	D	E	F
1	2008 Quarterly sales					
2	2nd Quarter					
3	Note: figures include convention sale					
4			April	May	July	
5						
6	Bloomington Office		26500	32400	21050	
7	Marion Office		15600	19509	20760	
8	Robinson Office		12789	16009	16457	
9	Rockford Office		29750	45300	14500	
10	TOTAL					
11						

Enter the data above into a blank spreadsheet.

For example, we want to add all sales for the month of April in our worksheet #2.

We will assign a formula to the cell C10.

- Click the cell
- Type =
- Click the first cell you want to reference in the formula
- Type in the operator for the formula
- Repeat these functions with all the remaining cells in the column
- Press **Enter Key** or click **Enter** ✓ on the **Formula** bar



The formula results appear in the cell; the **Formula** bar displays the formula assigned to the cell.

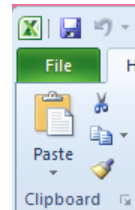
**The another way to total a cell range:**

- Click the cell E10
- Click the small arrow on the **AutoSum** button in the **Editing** group on the **Home** tab
- Make sure all the cells in the range are selected
- Click the Sum button again

To edit a formula click in the cell containing the formula and make any corrections in the **Formula** bar or double click the cell and make the changes you want.

**To save time you can copy a formula from one cell to another.**

- Click cell C10 containing the formula
- Click **Copy** under **Home** tab
- Select the cell D10 you want the formula
- Click **Paste**



appear

Excel copies the formula

**Exercise spreadsheet #3**

A	B	C	D	E	F	G	H	I
				Orders of Operations			Operators	
				P	Parenthesis		+	Addition
				E	Exponents		-	Subtraction
				M	Multiplication		*	Multiplication
				D	Division		/	Division
				A	Addition			
				S	Substraction			

Use the information above.

**Excel Formulas - Combining the Mathematical Operators**

- Enter the number 25 in cell A1
- Enter the number 50 in cell A2
- Enter the number 2 in cell A3
- In cell A5 enter the following formula **=(A1 + A2) \* A3**
- Press the Enter key, the answer is 150

Notice the parenthesis in the formula. The parenthesis groups part of your sum together. Without them, Excel will normally calculate from left to right.

Now see what happens **without the parenthesis:** **A1+A2\*A3**

- Click on cell A5
- Click inside the formula bar at the top
- Delete both the brackets from the formula
- Press the return key on your keyboard to see the answer

Excel sees multiplication as more important than adding up, it will multiply cell A2 by cell A3 first and then add cell A1

`=(A1+25)/(B1+B2)`

In this example, the parentheses around the first part of the formula force Excel to calculate A1+25 first and then divide the result by the sum of the values in cells B1 and B2.

## Understanding functions

You can use a wide variety of built-in formulas called functions. Excel offers over 300 functions, grouped into ten categories. Functions speed up your Excel calculations.

Frequently used functions:

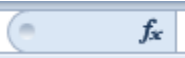
<b>SUM</b>	calculates sum	<code>=SUM(A1:A2)</code>
<b>AVERAGE</b>	calculates average	<code>=AVERAGE(A1:A2)</code>
<b>MAX</b>	returns highest value	<code>=MAX(A1:A2)</code>
<b>MIN</b>	returns lowest value	<code>=MIN(A1:A2)</code>
<b>TODAY</b>	returns the current date	<code>=TODAY()</code>
<b>COUNT</b>	returns a count of text or numbers in a range	<code>=COUNT(value1,value2,...)</code>

You can use the **Insert Functions** dialog box on the formula bar to look for a particular function from Excel's ten most used function categories.

## Exercise spreadsheet #4

	A	B	C	D	E	F
1						
2			January	February	March	Totals
3	Bloomington		\$16	\$18	\$45	
4	Marion		\$11	\$14	\$10	
5	Rockford		\$25	\$26	\$10	
6			\$110	\$103		
7						
8			April	May	June	
9	Bloomington		\$15.68	\$19.65	\$11.73	
10	Marion		\$23.47	\$14.78	\$15.56	
11	Rockford		\$21.43	\$30.76	\$120.55	
12						
13	1st Quarter Average		\$19		\$273.60	
14						
15						
16						

We will calculate average sales for 1st quarter.

- Click the cell C13
-  Click the **Function Wizard** button on the **Formula** bar or on the Formulas tab
- Excel inserts an equal sign automatically to denote a formula and displays the **Insert Function** dialog box
- Click the **Or select a category** option; Average is displayed both under the Most Recently Used or the Statistical categories
- Click Average; a description appears for the function you select
- Click **OK**; the **Function Arguments** dialog box appears.

Select the cells for each argument required by the function. You can type a range or cell address into the argument text box or select a cell or range of cells directly in the worksheet, Excel automatically adds the references to the argument.

- Click **OK** when finished construction the arguments.

Excel displays the function results in the cell; the function appears in the formula bar.

### Edit Function

- Click the cell containing the function that you want to edit
- Click the **Function Wizard** button on the **Formula Bar** or the **Formulas Ribbon** tab to use the **Function Library** ribbon group

Excel displays the many different **Function Arguments** in categories where you can make changes to cell references or values as needed.

### Exercise spreadsheet #5

	A	B	C	D	E	F	G	H	I
1									
2			6 Month Sales Figures for 2008						
3		January	February	March	April	June	July	Total Sales	% of Sales
4	Bloomington	120	312	256	290	278	231	1487	
5	Marion	380	234	120	712	190	567	2203	
6	Rockford	250	615	212	235	154	234	1700	
7	Total Sales	750	1161	588	1237	622	1032	5390	
8									
9									
10									

### Calculate a Percentage

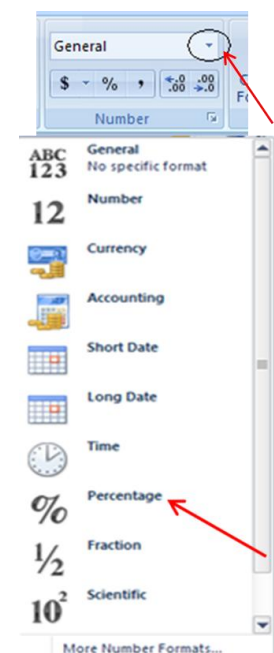
We have total sales figures for three offices over 6 a month period. We will calculate each office's percentage of total sales.

To accurately display percentages, before you format the numbers as a percent, make sure that they have been calculated as percentages, and that they are displayed in decimal format.

A percentage identifies the portion of the total represented by one value. When you calculate a percentage you start with a fraction. Percentages are calculated by using the equation **amount / total = percentage**. You divide the top number in the fraction (numerator) by the bottom number (denominator) to obtain a decimal value and then multiply it by 100 to obtain the percentage value. So we use individual office sales as a numerator and the total sales for all offices as a denominator, but instead of multiplying by 100, we apply the percentage format.

We will make the total cell for all offices an **absolute cell reference** so we can accurately copy the formula to other cells.

- Click the cell I4 in which we store the formula
- Type =
- Click cell, containing the value H4 , numerator of the equation
- Type /
- Click cell H that serves as the denominator of the equation
- Press F4 to convert the cell reference to an absolute reference
- Press enter or click accept button on the Formula Bar
- Click the cell containing the formula
- Click the Home tab
- Click the small black arrow to display the different cell formats



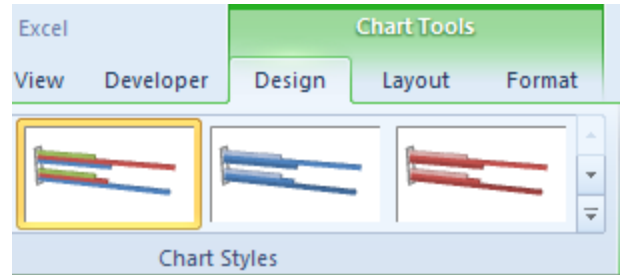
- Click Percentage

Excel converts the decimal to a percentage. Copy the formula to cells I5 and I6.

## Create a Chart

You can quickly turn your spreadsheet data into easy-to-read charts.

- Select the range of data you want to chart.  
You can include any heading and labels, but do not include subtotals or totals.
- Click the **Insert Ribbon** tab
- Click a chart **type** from the **Charts** group
- Click a chart **style** the **chart template** appears on the worksheet



Excel creates a chart, places it on the worksheet, and displays three chart tabs: **Design, Layout, and Format** under **Chart Tools**.

### Context-sensitive tabs

These type of Tabs are referred to as **Context Sensitive Tabs**

There are more ribbon tabs than those that show when Excel starts. These other tabs appear when they are needed. For example, you will not see the **Chart Tools** group of tabs, Design, Layout and Format, unless a chart is selected.

## Exercise spreadsheet #6

	A	B	C	D	E
1	Date	Deposits	Checks #	Amount	Running balance
2	12/3/2008	1500	2046	100	
3	12/3/2008	200	2047	40.5	
4	12/4/2008	100			
5	12/5/2008		2048	35	
6	12/6/2008		2049	10	
7	12/6/2008		2050	45.5	
8	12/7/2008		2051	25.34	
9	12/10/2008	100	2052	28.92	
10					
11					

## Calculate a Running Balance

- Click the cell E2 where the running balance will appear
- Type=B2-D2
- Click the cell E3
- Type =SUM(E2,B3,-D3)
- Press Enter

- Click the cell E3
- Drag the Fill handle down

Excel copies the formula down the column

## Errors messages Excel displays for formula errors

<b>Error message</b>	<b>Problem</b>	<b>Solution</b>
<b>#####</b>	The cell is not wide enough to contain the value	Increase the column width
<b>#DIV/0!</b>	Dividing by zero	Edit the cell reference or value of denominator
<b>#N/A</b>	Value is not available	Ensure that formula references the correct value
<b>#NAME?</b>	Does not recognize text in the formula	Ensure that the name referenced is correct
<b>#NULL!</b>	Specifies two areas that do not intersect	Check for an incorrect range operator or correct the intersection problem
<b>#NUM!</b>	Invalid numeric value	Check the function for an unacceptable argument
<b>#REF!</b>	Invalid cell reference	Correct cell reference
<b>#VALUE!</b>	Wrong type of argument or operand	Double –check arguments and operands