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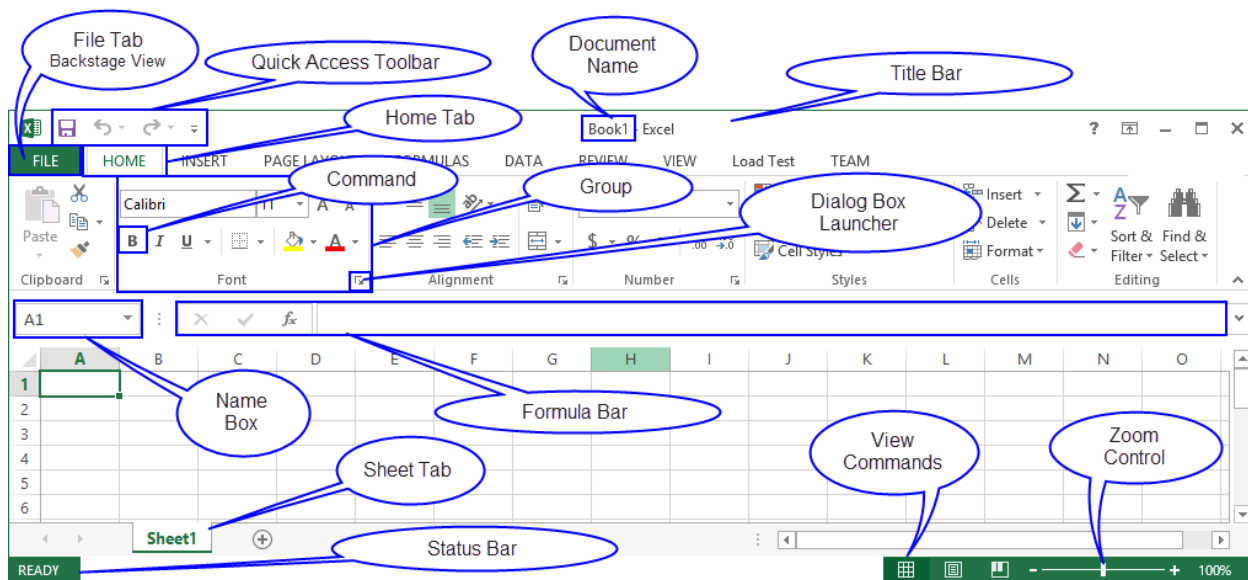
## INTRODUCTION

**EXCEL** is an Electronic Spreadsheet Program. An e-spreadsheet is a computer software program that is used for storing, organizing and manipulating data. Electronic spreadsheet programs were originally based on paper spreadsheets used for accounting. As such, the basic layout of computerized spreadsheets is the same as the paper ones. Excel allows you to perform sophisticated calculations and create formulas to automatically calculate answers. The advantage of using formulas is that when data in the worksheet changes, all of the formulas will automatically recalculate.

Excel can store multiple spreadsheet pages in a single computer file. The saved computer file is often referred to as a **workbook** and each page in the workbook is a separate **worksheet**.

## THE EXCEL 2016 ENVIRONMENT

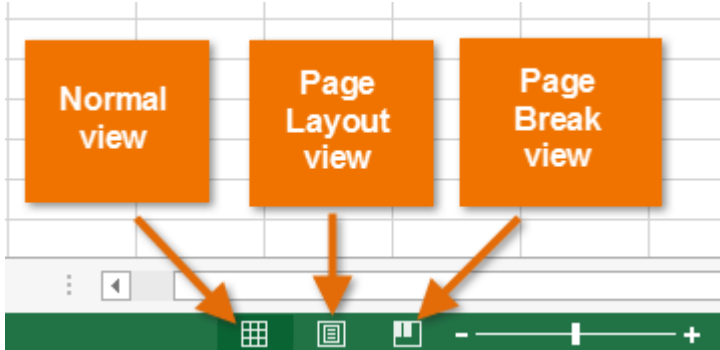
When you open Excel 2016 for the first time, the Excel Start Screen will appear. From here, you'll be able to create a new workbook, choose a template, or access your recently edited workbooks.



## WORKSHEET VIEWS

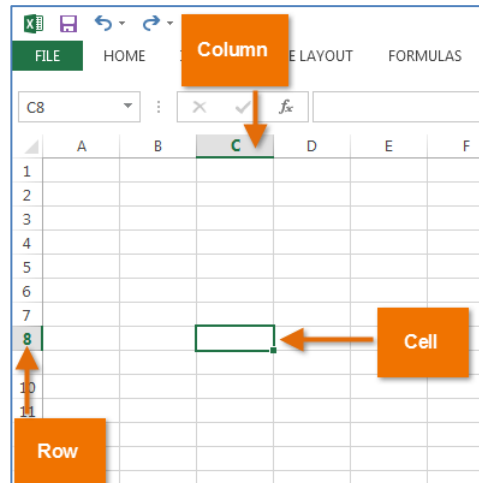
Excel 2016 has a variety of viewing options that change how your workbook is displayed. You can choose to view any workbook in **Normal view**, **Page Layout view**, or **Page Break view**. These views can be useful for various tasks, especially if you're planning to print the spreadsheet.

1. To change worksheet views, locate and select the desired **WORKSHEET VIEW** command in the bottom-right corner of the Excel window.

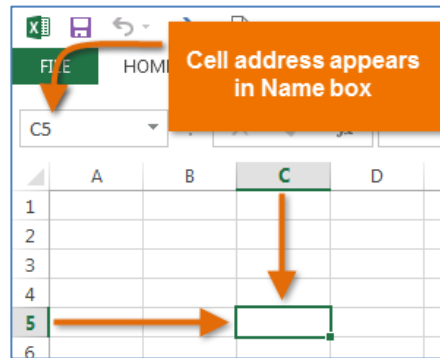


## UNDERSTANDING CELLS

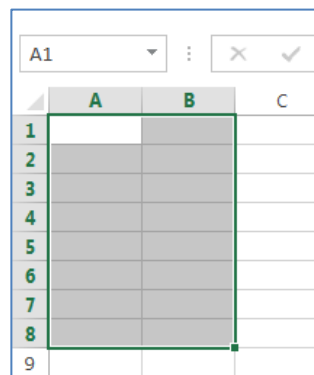
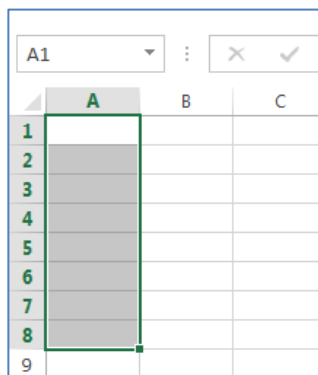
Every worksheet is made up of thousands of rectangles, which are called **cells**. A cell is the intersection of a row and a column. Columns are identified by **letters (A, B, C)** and rows are identified by **numbers (1, 2, 3)**.



Every cell has its own name, or cell address, based on its column and row. In this example, the selected cell intersects **column C** and **row 5**, so the cell address is **C5**. The cell address will also appear in the **NAME box**. Note that a cell's column and row headings are highlighted when the cell is selected.



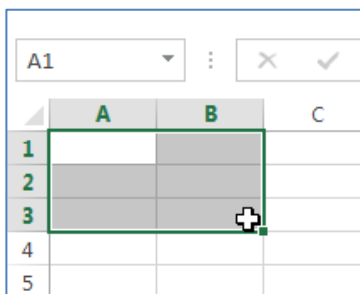
You can also select multiple cells at the same time. A group of cells is known as a **cell range**. Rather than a single cell address, you will refer to a cell range using the cell addresses of the **first** and **last** cells in the cell range, separated by a **colon**. For example, a cell range that included cells A1, A2, A3, A4 and A5 would be written as **A1:A5**.



## SELECT A CELL RANGE

Sometimes you may want to select a larger group of cells, or cell range.

1. Click, hold and drag the mouse until all of the adjoining cells you wish to select are highlighted.
2. Release the mouse to select the desired cell range. The cells will remain selected until you click another cell in the worksheet.

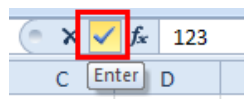


## CELL CONTENT

Any information you enter into a spreadsheet will be stored in a cell. Each cell can contain several different kinds of content, including text, formatting, formulas and functions.

### ENTER AND EDIT DATA

1. Select the cell in which you want to display the data; use the mouse to click on a cell to select it, or use the arrow movement keys on your keyboard to select a cell.
2. Begin typing data (numbers, text or formulas).
3. Enter the data into the cell by using any of these techniques:
  - a. press the **[ENTER]** key;
  - b. press any keyboard movement keys, such as the **RIGHT ARROW** or **TAB** keys;
  - c. or click the **ENTER** button in the formula bar (the boxed checkmark).



Worksheet cells can contain **constant values** (text or numbers) and **formulas**. By default, text is left-aligned in the cell and numbers are right-aligned. Changing the alignment of the data does not change the data type.

### DELETE OR EDIT THE CONTENTS OF A CELL

#### EDIT

1. **RETYPE** the entry and enter it again. The new entry replaces the old entry.
2. **DOUBLE-CLICK** the cell which places the cursor in the cell.
3. Press the **F2** key which places the cursor in the cell at the end of the entry.

#### DELETE

1. Select the cell and press the **[DELETE]** key on your keyboard.
2. Place the cursor on the fill handle (black square in the lower-right corner of the cell, hold the left mouse button and drag upward thru the cell.
3. Click the **ERASER** icon in the **EDITING** tab on the **HOME** tab.



Note:

- If you press the **[DELETE]** or **[BACKSPACE]** keys when a cell is selected, Excel removes the cell contents but does not remove any comments or cell formats.
- If you choose **CLEAR ALL** from the **Eraser** icon, Excel removes the contents, formats, and comments, from a cell.

## COPY AND PASTE CELL CONTENT

Excel allows you to copy content that is already entered into your spreadsheet and paste that content to other cells, which can save you time and effort.

1. Select the **cell(s)** you wish to copy.
2. Click the **COPY** command on the **HOME** tab or press **CTRL+C** on your keyboard.
3. Select the **cell(s)** where you wish to paste the content. The copied cells will now have a **dashed box** around them.

DOB	Year	
7/16/1973	Freshman	
11/30/1974	Senior	

4. Click the **PASTE** command on the **HOME** tab, or press **CTRL+V** on your keyboard, or press **ENTER**.

DOB	Year	
7/16/1973	Freshman	Freshman

## CUT AND PASTE CELL CONTENT

Unlike copying and pasting, which duplicates cell content, **cutting** allows you to move content between cells.

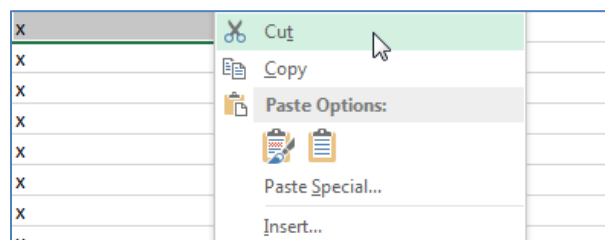
1. Select the **cell(s)** you wish to cut.
2. Click the **CUT** command on the **HOME** tab or press **CTRL+X** on your keyboard.
3. Select the cells where you wish to paste the content. The cut cells will now have a **dashed box** around them.
4. Click the **PASTE** command on the **HOME** tab or press **CTRL+V** on your keyboard.
5. The cut content will be removed from the original cells and pasted into the selected cells.

DOB	Year	
7/16/1973		Freshman

## ACCESS MORE PASTE OPTIONS

You can also access **additional PASTE options**, which are especially convenient when working with cells that contain formulas or formatting.

1. To access more **PASTE** options, click the **drop-down arrow** on the **PASTE** command.
2. Rather than choosing commands from the Ribbon, you can also access commands quickly by right-clicking. Simply select the cell(s) you wish to format, then **right-click** the mouse. A drop-down menu will appear, where you'll find several commands also located on the Ribbon.

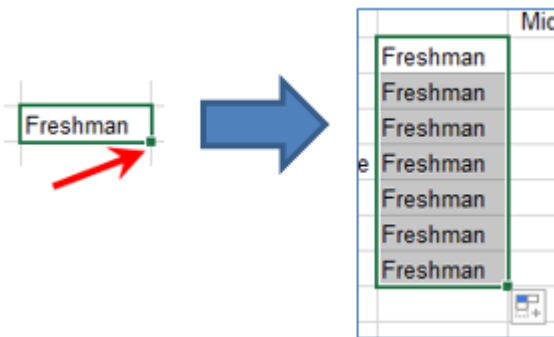




## USE THE FILL HANDLE

There may be times when you need to copy the content of one cell to several other cells in your worksheet. You could copy and paste the content into each cell, but this method would be very time consuming. Instead, you can use the **fill handle** to quickly copy and paste content to **adjacent cells** in the same row or column.

1. Select the cell(s) containing the content you wish to use. The **fill handle** will appear as a small square in the bottom-right corner of the selected cell(s).



2. Click, hold and drag the **Fill handle** until all the cells you wish to fill are selected.
3. Release the mouse to fill the selected cells.

## CONTINUE A SERIES WITH THE FILL HANDLE

The fill handle can also be used to **continue a series**. Whenever the content of a row or column follows a sequential order, like **numbers (1,2,3)** or **days (Monday, Tuesday, Wednesday)**, the fill handle can guess what should come next in the series. In many cases, you may need to select multiple cells before using the fill handle to help Excel determine the series order. In our example below, the **Fill handle** is used to extend a series of dates in a column.

G	H
Friday, March 01, 2013	
Friday, March 08, 2013	
	Friday, March 29, 2013

G	H
Friday, March 01, 2013	
Friday, March 08, 2013	
Friday, March 15, 2013	
Friday, March 22, 2013	
Friday, March 29, 2013	

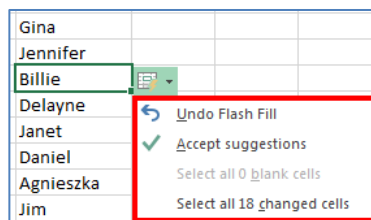
## USE FLASH FILL

**Flash Fill** can enter data automatically into your worksheet, saving you a lot of time and effort. Just like the Fill handle, **Flash Fill** can guess what kind of information you're entering into your worksheet. In the example below, we'll use **Flash Fill** to create a list of **first names** using a list of existing **full names**.

1. Enter the desired information into your worksheet. A **Flash Fill preview** will appear below the selected cell whenever **Flash Fill** is available.
  - If **FLASH FILL** does not activate, press **CTRL + E**.

	A	B
1	<b>Name</b>	<b>First Name</b>
2	Altemus, Tom	Tom
3	Woodall, Gina Marie	Gina Marie
4	McLean, Jennifer	Jennifer
5	Krebs, Billie	Billie
6	Caseman, Delayne	Delayne
7	Holland, Janet	Janet
8	Blomberg, Daniel	Daniel
9	Rysz, Agnieszka	Agnieszka

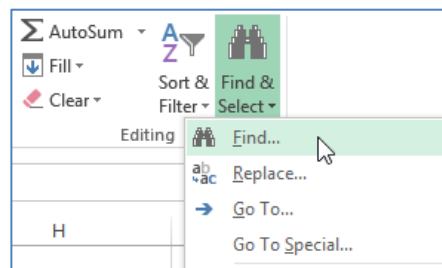
2. Press **ENTER**. The Flash Fill data will be added to the worksheet.
3. To **modify** or **undo** Flash Fill, click the **Flash Fill button** next to recently added **Flash Fill** data.



## FIND AND REPLACE

### FIND CONTENT

1. From the **HOME** tab, click the **FIND AND SELECT** command, then select **FIND...** from the drop-down menu.
  - You can also access the **FIND** command by pressing **CTRL+F** on your keyboard.



2. The **Find and Replace dialog box** will appear. Enter the content you wish to find.
3. Click **FIND NEXT**. If the content is found, the cell containing that content will be selected.
4. Click **FIND NEXT** to find further instances or **FIND ALL** to see every instance of the search term.
5. When you are finished, click **CLOSE** to exit the **Find and Replace dialog box**.

## REPLACE CONTENT



1. From the **HOME** tab, click the **FIND AND SELECT** command, then select **REPLACE...** from the drop-down menu.
2. The **Find and Replace dialog box** will appear. Type the text you wish to find in the **FIND WHAT:** field.
3. Type the text you wish to replace it with in the **REPLACE WITH:** field, then click **FIND NEXT**.
4. If the content is found, the cell containing that content will be selected.
5. Review the text to make sure you want to replace it.
6. If you wish to replace it, select one of the replace options:
  - **REPLACE** will replace individual instances.
  - **REPLACE ALL** will replace every instance of the text throughout the workbook. In our example, we'll choose this option to save time.
7. A dialog box will appear, confirming the number of replacements made. Click **OK** to continue. The selected cell content will be replaced.
8. When you are finished, click **CLOSE** to exit the **Find and Replace dialog box**.

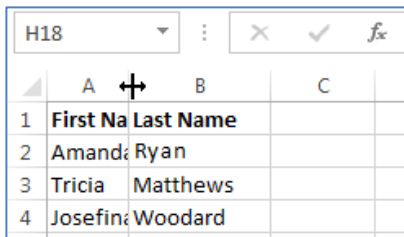
## WORKING WITH ROWS, COLUMNS AND CELLS

By default, every row and column of a new workbook is always set to the same height and width. Excel allows you to modify column width and row height in a variety of different ways, including wrapping text and merging cells.

### MODIFY COLUMN WIDTH

In our example below, some of the content in column A cannot be displayed. We can make all of this content visible by changing the width of column A.



1. Position the mouse over the **column line** in the **column heading** so that the **white cross**  becomes a **double arrow** .

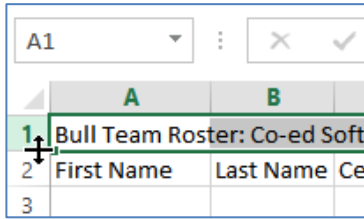


	A	B	C
1	First Na	Last Name	
2	Amand	Ryan	
3	Tricia	Matthews	
4	Josefin	Woodard	

2. Click, hold and drag the mouse to **increase** or **decrease** the column width.
3. Release the mouse. The column width will be changed.

## MODIFY ROW HEIGHT

1. Position the cursor over the **row line** so that the **white cross**  becomes a **double arrow** .




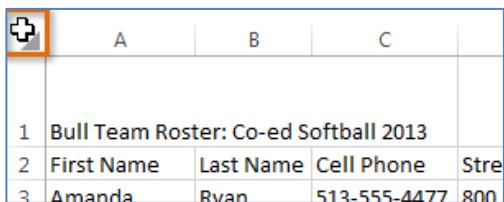
A1		
	A	B
1	Bull Team Roster: Co-ed Soft	
2	First Name	Last Name Ce
3		


2. Click, hold and drag the mouse to **increase** or **decrease** the row height.
3. Release the mouse. The height of the selected row will be changed.



## MODIFY ALL ROWS OR COLUMNS

Rather than resizing rows and columns individually, you can also modify the height and width of every row and column at the same time. This method allows you to set a uniform size for every row and column in your worksheet.

1. Locate and click the **SELECT ALL** button ,  , just below the **formula bar** to select every cell in the worksheet.

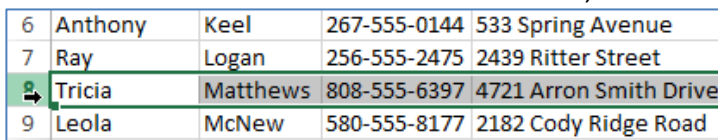


	A	B	C	
1	Bull Team Roster: Co-ed Softball 2013			
2	First Name	Last Name	Cell Phone	Stre
3	Amanda	Ryan	513-555-4477	800

2. Position the mouse over a **row line** so that the **white cross**  becomes a **double arrow** .
3. Click, hold and drag the mouse to **increase** or **decrease** the row height.
4. Release the mouse when you are satisfied with the new row height for the worksheet.

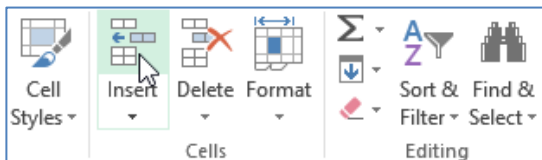
## INSERT ROWS

1. Select the **row heading below** where you want the new row to appear. For example, if you want to insert a row between rows 7 and 8, select row 8.



6	Anthony	Keel	267-555-0144	533 Spring Avenue
7	Ray	Logan	256-555-2475	2439 Ritter Street
8	Tricia	Matthews	808-555-6397	4721 Arron Smith Drive
9	Leola	McNew	580-555-8177	2182 Cody Ridge Road

2. Click the **INSERT** command on the **HOME** tab.



3. The new row will appear **above** the selected row.

## INSERT COLUMNS

1. Select the **column heading** to the right of where you want the new column to appear. For example, if you want to insert a column between columns D and E, select column E.

D	E	F
Street Address	Position(s)	
800 Round Table Drive	Pitcher, Second base	
4721 Arron Smith Drive	Catcher	

2. Click the **Insert** command on the **Home** tab.
3. The **new column** will appear **to the left** of the selected column.

**NOTE:** When inserting rows and columns, make sure you select the entire row or column by clicking the **heading**. If you select just a cell in the row or column, the **INSERT** command will only insert a new cell.

## DELETE ROWS

1. Select the **row(s)** you want to delete.
2. Click the **DELETE** command on the **HOME** tab.
3. The selected row(s) will be deleted and the rows below will **shift up**.

## DELETE COLUMNS

1. Select the **columns(s)** you want to delete.
2. Click the **DELETE** command on the **HOME** tab.
4. The selected columns(s) will be deleted and the columns to the right will **shift left**.
  - It's important to understand the difference between **deleting** a row or column and simply **clearing its contents**. If you want to remove the content of a row or column without causing others to shift, right-click a heading and then select **CLEAR CONTENTS** from the drop-down menu.

## WRAP TEXT AND MERGE CELLS

Whenever you have too much cell content to be displayed in a single cell, you may decide to **wrap the text** or **merge** the cell rather than resizing a column. Wrapping the text will automatically modify a cell's **row height**, allowing the cell contents to be displayed **on multiple lines**. Merging allows you to combine a cell with adjacent, empty cells to create **one large cell**.

## WRAP TEXT IN CELLS

1. Select the cells you wish to wrap.

	A	B	C	D	E
1	Bull Team Roster: Co-ed Softball 2013				
2	First Name	Last Name	Cell Phone	Street Address	Position(s)
3	Amanda	Ryan	513-555-4477	800 Round Tab	Pitcher, Second base
4	Tricia	Matthews	808-555-6397	4721 Arron Sm	Catcher

2. Select the **WRAP TEXT** command on the **HOME** tab.
3. The text in the selected cells will be wrapped.

	A	B	C	D	E
1	Bull Team Roster: Co-ed Softball 2013				
2	First Name	Last Name	Cell Phone	Street Address	Position(s)
3	Amanda	Ryan	513-555-4477	800 Round Table Drive	Pitcher, Secc
4	Tricia	Matthews	808-555-6397	4721 Arron Smith Drive	Catcher

4. Click the **Wrap Text** command again to **unwrap** the text.

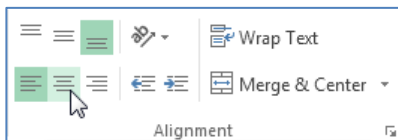
## MERGE CELLS USING THE MERGE & CENTER COMMAND

1. Select the **cell range** you want to merge together.
2. Select the **MERGE & CENTER** command on the **HOME** tab.
3. The selected cells will be **merged** and the text will be **centered**.

## FORMATTING A WORKSHEET

### CHANGE HORIZONTAL TEXT ALIGNMENT

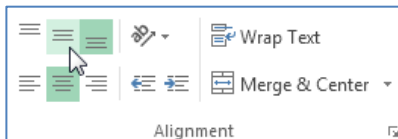
1. Select the **cell(s)** you wish to modify.
2. Select one of the three **HORIZONTAL ALIGNMENT** commands on the **HOME** tab.



3. The text will realign.

### CHANGE VERTICAL TEXT ALIGNMENT

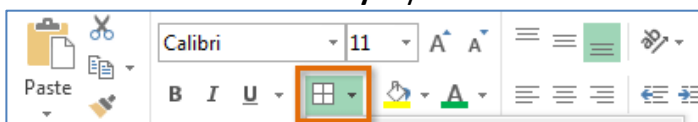
1. Select the **cell(s)** you wish to modify.
2. Select one of the three **VERTICAL ALIGNMENT** commands on the **HOME** tab.



3. The text will realign.
4. You can apply **both** vertical and horizontal alignment settings to any cell.

### ADD A BORDER

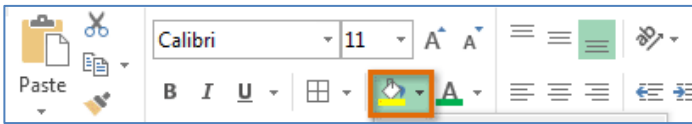
1. Select the **cell(s)** you wish to modify.
2. Click the drop-down arrow next to the **BORDERS** command on the **HOME** tab.
3. Select the **border style** you want to use.



4. The selected border style will appear.
5. You can draw borders and change the line style and color of borders with the **DRAW BORDERS tools** at the bottom of the **BORDERS** drop-down menu.

## ADD A FILL COLOR

1. Select the **cell(s)** you wish to modify.
2. Click the drop-down arrow next to the **FILL COLOR** command on the **HOME** tab.
3. Select the **fill color** you want to use. A live preview of the new fill color will appear as you hover the mouse over different options.



4. The **selected fill color** will appear in the selected cells.

## APPLY NUMBER FORMATTING

1. Select the **cells(s)** you wish to modify.
2. Click the drop-down arrow next to the **NUMBER FORMAT** command on the **HOME** tab.
3. Select the **desired formatting option**.
4. The selected cells will change to the new formatting style. For some number formats, you can then use the **Increase Decimal** and **Decrease Decimal** commands (below the **NUMBER FORMAT** command) to change the number of decimal places that are displayed.

## WORKING WITH DATA – FREEZE PANES

### FREEZE ROWS

You may want to see certain rows or columns all the time in your worksheet, especially **header cells**. By **freezing** rows or columns in place, you'll be able to scroll through your content while continuing to view the frozen cells.

1. Select the **row** below the row(s) you wish to freeze.
2. Click the **VIEW** tab on the **RIBBON**.
3. Select the **FREEZE PANES** command and then choose **FREEZE PANES** from the drop-down menu.
4. The rows will be frozen in place, as indicated by the gray line. You can scroll down the worksheet while continuing to view the frozen rows at the top.

### FREEZE COLUMNS

1. Select the **column** to the right of the column(s) you wish to freeze.
2. Click the **VIEW** tab on the **RIBBON**.
3. Select the **FREEZE PANES** command and then choose **FREEZE PANES** from the drop-down menu.
4. The column will be frozen in place, as indicated by the gray line. You can scroll across the worksheet while continuing to view the frozen column on the left.
5. To **unfreeze** rows or columns, click the **FREEZE PANES** command and then select **UNFREEZE PANES** from the drop-down menu.
6. If you only need to freeze the **top row** (row 1) or **first column** (column A) in the worksheet, you can simply select **FREEZE TOP ROW** or **FREEZE FIRST COLUMN** from the drop-down menu.

## USING FORMULAS AND FUNCTIONS

**Formulas** consist of the addresses of the cells containing the values and the appropriate mathematical operators. Formulas begin with an **equal sign (=)**, because they contain cell addresses. This prevents Excel from interpreting the formula as text, since cell addresses begin with letters. For example, to add the numbers in cells A1 and A2, you would type the formula: **=A1+A2**.

You enter the formula in the cell where you want the result to appear. Because formulas use cell addresses, they automatically recalculate when the value of a cell used in a formula changes. When a cell containing a formula is selected, the actual formula appears in the formula bar. The calculated results of the formula appear in the cell.

- + for addition
- for subtraction
- \* for multiplication
- / for division
- ^ for exponents

A **Function** is a formula or action that is built into Excel. For example, rather than use the plus sign (+) to add cells A1 through A5, use the **SUM** function: **=SUM(A1:A5)**

### ORDER OF OPERATIONS

When you are examining or creating formulas, you should keep in mind that there is a specific sequence that Excel follows when it performs calculations. This is the order of operations:

1. **Parentheses:** computations enclosed in parentheses are first priority.
2. **Exponents:** computations involving exponents are performed next.
3. **Multiplication and division:** these operations are performed next in the order in which they are encountered (from left to right).
4. **Addition and subtraction:** these operations are performed last. They are also performed in the order in which they are encountered (from left to right).



## CREATE A FORMULA

1. Select the **cell** that will contain the formula.
2. Type the **equal sign (=)**. Notice how it appears in both the **cell** and the **formula bar**.

	A	B	C	D
1	June Budget	\$1,200.00		
2	July Budget	\$1,800.00		
3	Total Budget	=		
4				
5				
6				
7				
8				

Formula will appear in both the cell and the formula bar

3. Type the **cell address** of the cell that you wish to reference first in the formula.
4. Type the mathematical operator you wish to use.
5. Type the **cell address** of the cell that you wish to reference second in the formula.

	A	B	C
1	June Budget	\$1,200.00	
2	July Budget	\$1,500.00	
3	Total Budget	=B1+B2	
4			
5			

6. Press **ENTER** on your keyboard. The formula will be calculated and the value will be displayed in the cell.

## COMMON FUNCTIONS

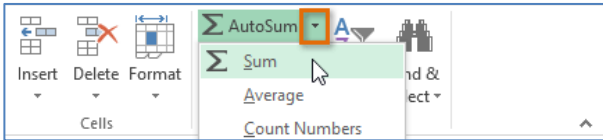
Excel has a wide variety of functions available. Here are some of the most common functions you'll use:

- **SUM:** This function **adds** all the values of the cells in the argument.
- **AVERAGE:** This function determines the **average** of the values included in the argument. It calculates the sum of the cells and then divides that value by the number of cells in the argument.
- **COUNT:** This function **counts** the number of cells with numerical data in the argument. This function is useful for quickly counting items in a cell range.
- **MAX:** This function determines the **highest cell value** included in the argument.
- **MIN:** This function determines the **lowest cell value** included in the argument.

## CREATE A FUNCTION USING THE AUTOSUM COMMAND

The **AUTOSUM** command allows you to automatically insert the most common functions into your formula, including **SUM**, **AVERAGE**, **COUNT**, **MIN**, and **MAX**. Select the **cell** that will contain the function. In our example, we'll select cell **D12**.

1. In the **EDITING** group on the **HOME** tab, locate and select the **arrow** next to the **AUTOSUM** command and then choose the **desired function** from the drop-down menu.



2. The selected function will appear in the cell. If logically placed, the **AUTOSUM** command will automatically select a cell range for the argument.
  - You can also manually enter the desired cell range into the argument.
3. Press **ENTER** on your keyboard. The function will be calculated and the result will appear in the cell.
4. The **AUTOSUM** command can also be accessed from the **FORMULAS** tab on the **RIBBON**.

## RELATIVE AND ABSOLUTE CELL REFERENCES

There are two types of cell references: relative and absolute. Relative and absolute references behave differently when copied and filled to other cells. Relative references change when a formula is copied to another cell. Absolute references, on the other hand, remain constant, no matter where they are copied.

### RELATIVE REFERENCES

By default, all cell references are relative references. When copied across multiple cells, they change based on the relative position of rows and columns. For example, if you copy the formula `=A1+B1` from row 1 to row 2, the formula will become `=A2+B2`. Relative references are especially convenient whenever you need to repeat the same calculation across multiple rows or columns.

1. Enter the formula to calculate the desired value. In our example, we'll type `=SUM(B4:B7)`.

	A	B	C	D	E	F
1	<b>Worldwide Sporting Goods - QTR 1</b>					
2						
3	<b>Sales Rep</b>	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	Total Sales	<i>Expenses</i>
4	Smith, S.	1,819.21	1,766.55	1,942.88	\$ 5,528.64	1,241.00
5	Brown, N.	1,704.38	1,809.01	1,650.28	\$ 5,163.67	1,165.00
6	Wallace, F.	2,009.69	2,195.19	2,159.29	\$ 6,364.17	1,650.00
7	Adams, G.	1,948.44	1,725.56	1,870.26	\$ 5,544.26	1,345.00
8	Total	=sum(B4:B7)				
9						

2. Locate the fill handle in the bottom-right corner of **B8**.
3. Click, hold, and drag the fill handle over the cells you want to fill. In our example, we'll select cells **C8:F8**.
4. Release the mouse. The formula will be copied to the selected cells with relative references, and the values will be calculated in each cell.

## ABSOLUTE REFERENCES

There may be times when you do not want a cell reference to change when filling cells. Unlike relative references, **absolute references** do not change when copied or filled. You can use an absolute reference to keep a row and/or column **constant**. An absolute reference is designated in a formula by the addition of a **dollar sign (\$)**. It can precede the column reference, the row reference, or both.

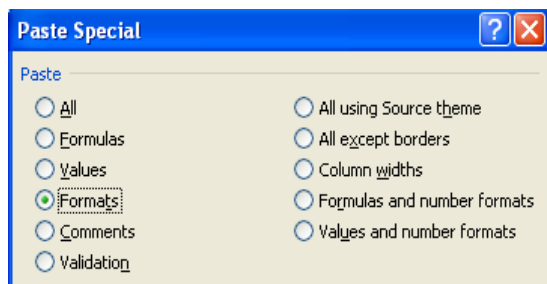
## PASTE SPECIAL

When you copy the contents of a cell or a range of cells to the *Windows Clipboard*, any formatting that has been applied is copied as well as the cell contents. When you subsequently paste the contents of the Clipboard to a new location, an exact copy of both the contents and the formatting is pasted.

There may be times when you want to paste only certain aspects of the copied cells (such as formulas, values, or formats). For example, you may want to copy the formats of an entire worksheet to another worksheet but not the data or values. The **Paste Special** command allows you to specify what you want to paste into the new location. You can paste all cell attributes or only selected ones.

### COPY FORMATS

1. Select the **QTR 3** worksheet and apply formatting to the column headings.
2. Select those cells and click the **COPY** button in the **HOME** tab.
3. Select the **QTR 4** tab and select the column heading cells.
4. Click the dropdown arrow on the **PASTE** button on the **HOME** tab.
5. Select **PASTE SPECIAL** and choose **FORMATS**. Click **OK**.



### COPY VALUES

1. To copy the results of a formula, but not the formula itself, select a cell that contains a formula. Then, click the **COPY** button.
2. Select a blank cell in the same worksheet or on another worksheet.
3. Click the dropdown arrow on the **PASTE** button on the **HOME** tab.
4. Select **PASTE SPECIAL** and choose **VALUES**. Click **OK**.

## RANGE NAMES

Advantages to using **Range Names** instead of cell addresses include:

- Names reduce the chance of error in formulas. It's easy to recognize if **EXPENSES** is typed incorrectly. If a cell address is typed incorrectly, it is harder to detect.
- Names adapt to changes within a range (for example, when rows and columns are added to or removed from the range).
- Names are easy to recognize and maintain in formulas. For example, the formula **=TOTALSALES - EXPENSES** is easier to understand than the formula **=E3 - F3**.
- You can easily go to a named cell or range using the **Name** box (or **F5**).
- Names created in one worksheet are available to all other worksheets in the workbook.
- Names are *absolute*. If you use a range name in a formula, the formula always refers to that range even if you copy or move the formula.

### ASSIGN A NAME TO A RANGE USING THE NAME BOX

- Names must start with a letter or an underscore character. The remainder of the name can contain any character except a space or a hyphen. Names are not case-sensitive.
- Names can be up to 255 characters long; however, you should keep them short to make them easy to use and to conserve space in formulas.
- You should not use names that resemble cell references (such as A1).

1. In the spreadsheet **ADDSAL1**, click on a cell that contains a formula, such as **Total Sales**.
2. Click in the **NAME** box, type **total** and press **ENTER**.

	A	B	C	D	E
1					
2	<b>Sales Rep</b>	Jan	Mar	Total Sales	
3	Smith, S.	1,819.21	1,948.88	\$ 5,528.64	
6	Adams, G.	1,948.44	1,870.26	\$ 5,544.26	
7	<b>Total</b>	7,481.72	7,622.71	\$22,600.74	
8					

### GO TO A NAMED RANGE

1. Open the **ADDSAL1** workbook in the **Excel Advanced Samples** folder.
2. Press the **GOTO** key, **F5**.
3. Either type **'total'** or double-click **'total'** if it appears in the box.
4. The cursor will now be positioned on the cell that you named **'total'**.

### USE A NAMED RANGE IN A FORMULA

1. In a blank cell in the spreadsheet, enter **=E4/TOTAL** in a blank cell and press **ENTER**.
2. The current value of **'total'** will be used in the formula.



### DELETE A RANGE NAME

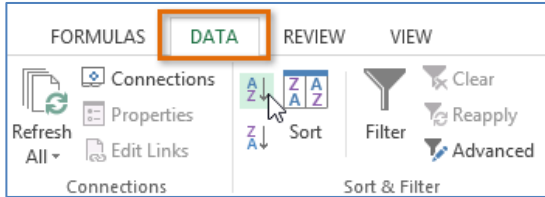
Deleting a range name permanently removes it from the workbook. If you accidentally delete a range name that is still referred to in a formula, the formula can no longer calculate correctly, and the error message **#NAME?** appears in the cell instead of the result of the formula.

1. Click the **NAME MANAGER** button. The **NAME MANAGER** window will open.
2. Select **total**.
3. Click the **DELETE** button, click **OK**, then, click **CLOSE**.

## WORKING WITH DATA – SORT AND FILTER

### SORT A SHEET

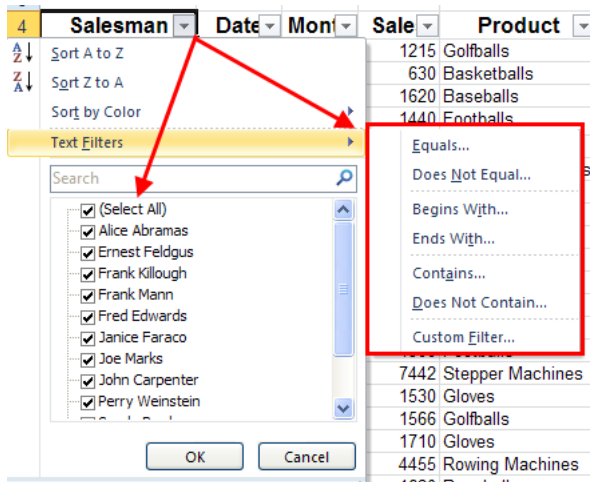
1. Select a **cell** in the column you wish to sort by.
2. Select the **DATA** tab on the **RIBBON** and then click the **ASCENDING** command  to Sort A to Z, or the **DESCENDING** command  to Sort Z to A.



3. The worksheet will be sorted by the selected column.

### AUTOFILTER



The **AutoFilter** option allows you to hide records in a list except those that meet certain criteria. The AutoFilter command places a drop-down menu at the top of each column in the list. To display a filtered group of records from the menu, select the criteria from the list.



4. Select the cell containing the column heading **Salesman**.
5. On the **DATA** tab, click the **FILTER** button in the **SORT & FILTER** group.
6. Click the arrow next to **SALESMAN**. A Sort menu will appear. Deselect **SELECT ALL** and select **ALICE ABRAMAS**. The sorted data will appear in your spreadsheet.
7. To clear the sort, click the **CLEAR** button in the **SORT & FILTER** group.

## USING FILTER TO SORT

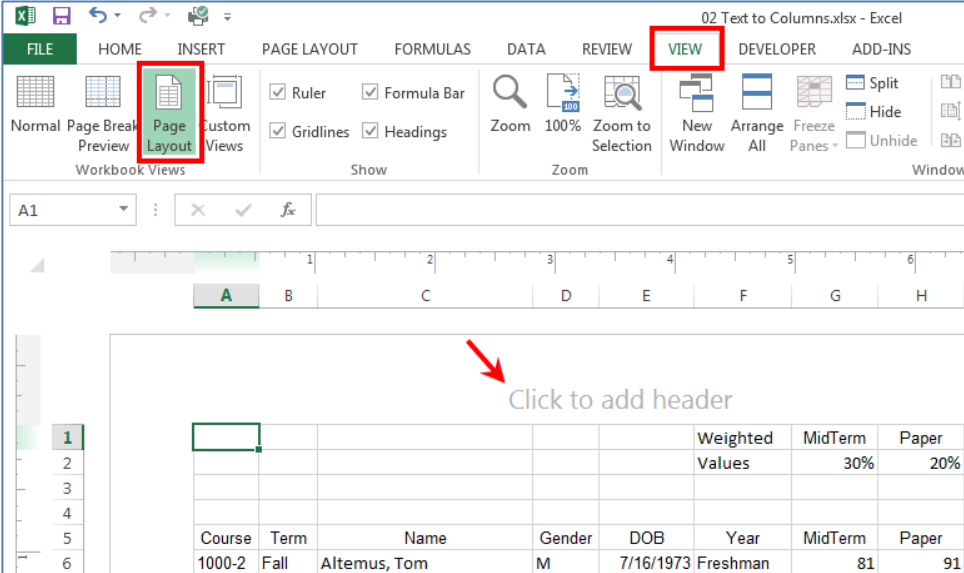
The **Sort Ascending** and **Sort Descending** buttons allow you to sort individual rows in a column, or to sort rows in a worksheet based on the values in one column only. The **SORT** button gives you the ability to sort using additional criteria.

1. If using the file **PIVOT.XLSX**, select cells **A4: I29**.
2. You can also just select a column heading as long as there are no blank rows between the column headings and the data.
3. Click the **SORT ASCENDING** button, . Notice that the data has been sorted alphabetically by the first column.
4. Then, click the **SORT DESCENDING** button, . Notice the data in the first column has been sorted in reverse order.

## PRINTING THE WORKSHEET

### WORK WITH HEADERS AND FOOTERS

1. In the View tab, click **PAGE LAYOUT** in the **WORKBOOK VIEWS** group.
2. Click the **CLICK TO ADD HEADER** link and type your header text directly into the box.



The screenshot shows the Microsoft Excel interface with the **VIEW** tab selected in the ribbon. The **PAGE LAYOUT** option in the **WORKBOOK VIEWS** group is highlighted with a red box. In the worksheet, a red arrow points to the text "Click to add header" in the header area above the data table.

Course	Term	Name	Gender	DOB	Year	MidTerm	Paper
1000-2	Fall	Altemus, Tom	M	7/16/1973	Freshman	81	91

3. Press the **[ENTER]** key when you are done. The header will display.
4. Note that when you click a header or footer section, the **DESIGN** contextual tab will display in the ribbon. This tab contains additional formatting tools.
5. To create a footer, click the **GO TO FOOTER** link on the **NAVIGATION** group of the **DESIGN** tab and type the footer text.
6. Click off the header or footer to deselect this option.

## PRINT THE ACTIVE WORKSHEET

If you have multiple worksheets in your workbook, you will need to decide if you want to print the whole workbook or specific worksheets. Excel gives you the option to **PRINT ACTIVE SHEETS**. A worksheet is considered active if it is selected.

1. Select the worksheets you want to print. To print multiple worksheets, click on the first worksheet, hold down the **CTRL** key, then click the other worksheets you want to select.
2. Click the **FILE** tab.
3. Select **PRINT** to access the **Print** pane.
4. Select **PRINT ACTIVE SHEETS** from the print range drop-down menu.
5. Click the **PRINT** button.

## PRINT THE ENTIRE WORKBOOK

1. Click the **FILE** tab.
2. Select **PRINT** to access the Print pane.
3. Select **PRINT ENTIRE WORKBOOK** from the print range drop-down menu.
4. Click the **PRINT** button.

## PRINT A SELECTION OR SET THE PRINT AREA

Printing a selection (sometimes called setting the print area) lets you choose which cells to print, as opposed to the entire worksheet.

1. Select the cells that you want to print.

	A	B	C
1	<b>Employee Name</b>	<b>January</b>	<b>February</b>
2	Allenson, Carol	\$ 5,897.00	\$ 2,356.00
3	Altman, Zoey	\$ 666.00	\$ 6,210.00
4	Aurelio, Fies	\$ 5,889.00	\$ 9,385.00
5	Aurelio, Vig	\$ 8,765.00	\$ 9,258.00
6	Bergman, Jeffery	\$ 1,928.00	\$ 6,595.00

2. Click the **FILE** tab.
3. Select **PRINT** to access the Print pane.
4. Select **PRINT SELECTION** from the print range drop-down menu.
5. You can see what your selection will look like on the page in **PRINT PREVIEW**.
6. Click the **PRINT** button.

## SAVING A FILE

### SAVE A WORKBOOK

1. Locate and select the **SAVE** command on the **Quick Access Toolbar**.



2. If you're saving the file for the first time, the **SAVE AS** pane will appear in **Backstage view**.
3. You'll then need to choose where to save the file and give it a file name. To save the workbook to your computer, select **COMPUTER** and then click **BROWSE**.
4. The **SAVE AS** dialog box will appear. Select the location where you wish to save the workbook.
5. Enter a **file name** for the workbook and click **SAVE**.
6. The workbook will be saved. You can click the **SAVE** command again to save your changes as you modify the workbook.

### USE SAVE AS TO MAKE A COPY

If you want to save a **different version** of a workbook while keeping the original, you can create a **copy**. To do this, you'll click the **SAVE AS** command in **Backstage View**. Just like when saving a file for the first time, you'll need to choose where to save the file and give it a new file name.

### EXPORT A WORKBOOK AS A PDF FILE

A **PDF** file will make it possible for recipients to view, but not edit, the content of your workbook.

1. Click the **FILE** tab to access **Backstage view**.
2. Click **EXPORT** and then select **Create PDF/XPS**.
3. The **Save As** dialog box will appear. Select the location where you wish to export the workbook, enter a file name, then click **PUBLISH**.
  - By default, Excel will only export the **active worksheet**. If you have multiple worksheets and want to save all of them in the same **PDF** file, click **OPTIONS** in the **Save as** dialog box. The **OPTIONS** dialog box will appear. Select **ENTIRE WORKBOOK** and then click **OK**.

