# Microsoft Excel I Handout

## Microsoft Excel I

Excel is a spreadsheet program that can be used to organize, analyze and exhibit data. Excel can be used to create tables, schedules and inventories, run statistical and financial analyses, find trends in large bodies of data, and more. It could be used for something as simple as your household budget or as complex as a large sales report. Excel has more features than you will ever need. What you intend to do with Excel will determine which features you need to learn.

**Seth Cohen**
**Seth.cohen@lfpl.org**

## The Excel Window

When you first open Excel you will see a typical spreadsheet with a grid. You may notice that Excel has many of the same features as other Office programs. Review the parts of the Excel spreadsheet in the snapshot to the right.

Tabs

Name box

Ribbon

Active cell

Formula bar

Row numbers

Column letters

Worksheet tabs
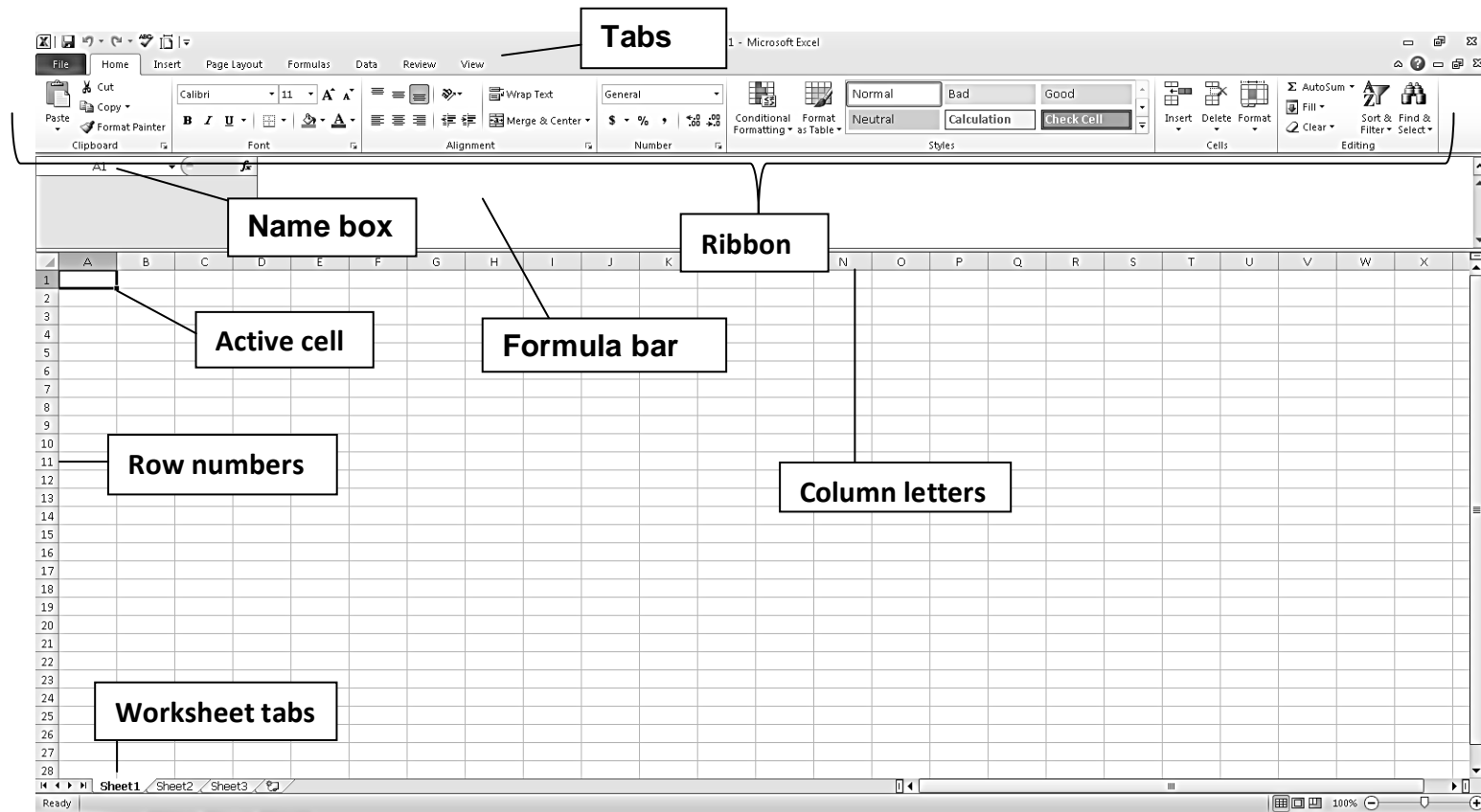
## Basic Terminology

**Cells** –Each cell is the intersection of a row and column. Cells are the basic units that make up the spreadsheet. They store data. Cells can contain numbers, text, formulas and functions. Cells are named by giving the column letter and then the row number.  For example, B3 means the active cell is located in column B, row three. This is the 'cell reference'.

**Active Cell** – The active cell is the cell you are currently working in. You can identify the active cell on your worksheet because it has a thicker border than the other cells and its name is listed in the cell name box.  To change which cell is the active cell, simply click on it or move to it using the arrow keys on your keyboard.

**Name Box** –The cell name box, located below the clipboard block in the ribbon, identifies the name of the active cell.

**Formula Bar** –The formula bar displays the contents of the active cell. This could be a formula, data or text. If the active cell shows the total from an equation, say 15, look to the formula bar to see the equation used to get that formula, =5+5+5.

**Workbook** – An Excel file is called a workbook. It is helpful to think of a workbook as being like a notebook containing several sheets.

**Worksheets** –The spreadsheets in the workbook are called worksheets.  They are often referred to as simply "sheets." In addition to data, worksheets can also contain graphical objects, such as charts, arrows and pictures. Each worksheet consists of a tabular grid of cells. There are many rows and many columns. The columns are labeled alphabetically and the rows numerically. A cell reference reads, A1, the cell in column A and row 1.

**Worksheet Tabs** –There is a tab in the bottom left corner of the Excel window for each sheet in your workbook.  Clicking on a sheet's tab will take you to that sheet.

**Ribbon** – The ribbon runs across the top of the spreadsheet. It is divided into tabs; the active tab will stick out from the ribbon. To select a new tab, just click on the word in the ribbon. Each tab is broken into blocks, and each block has a series of commands.

**File Tab** – The file tab is a new addition to the ribbon in Office 2010. It replaces the Office button. Under the File tab you will find Print, Save, and other options.

# Navigating Around the Workbook

You can click in a cell using your mouse to select a specific cell.  Using the scroll bars and the mouse you can select any cell in the worksheet. However, some users find it easier to move around in Excel using the keyboard instead of the mouse. The table below explains some keystrokes you can use to navigate around worksheets.

| Keys | Moves |
|---|---|
| TAB key | Move to the right to the next cell in the row. |
| ENTER key | Move to the cell in the column below. |
| Shift+TAB | Move to preceding cell. |
| Arrow keys (→←↑↓) | Move right, left, up, and down (one cell at a time). |
| CTRL+arrow keys | Move to the edge of the current data region (region the cell is currently in). |
| Home | Move to the beginning of row. |
| CTRL+Home | Move to Cell A1. |

| | A | B | C | D | E | |
|---|---|---|---|---|---|---|
| B6 | | ▾ ⦿ X ✓ fx | | | | |
| | A | B | C | D | E | |
| | | January | | | | |
| | Food | 200 | 150 | 250 | 225 | |
| | Utilities | 75 | 100 | 125 | 90 | |
| | Entertainm | 100 | 120 | 75 | 150 | |
| | Rent | 700 | 700 | 700 | 700 | |
| | Total | | | | | |
| | | | | | | |

## Entering Data into a Cell

To enter data into a cell:

1. Select the cell by clicking on it. The cursor will not blink (as it does in Microsoft Word), but instead the cell will be outlined in a thick black line and it will be listed in the cell name field below the ribbon. These two things tell you that the cell is active and ready for editing.
2. Type numbers, text, or a combination of both into the cell.
3. Press the Enter key OR click on the green check mark to the left of the Formula bar. Pressing Enter will enter the information into that cell and move you down to the next cell. Pressing the green check mark will enter your data but keep the same cell active.
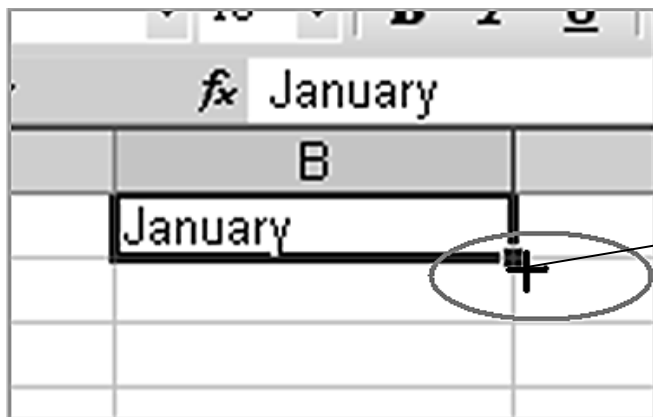


## Auto Fill

If you are entering information into Excel that is part of a series (such as the months of the year), use Auto Fill.

- Type January in cell B1
- Place your mouse over the bottom right corner of that cell. Your mouse will look like a plus sign.
- Click and drag across enough cells to finish your series.
- This will work with text series (Monday, Tuesday, etc) or number series (3,6,9,12, etc). If Excel cannot determine what the series is then it will just copy whatever is in the first cell and paste it in all the cells in your series.

## Editing a cell

If you discover that you made a mistake when entering data into a cell, you can correct them within the formula bar or the cell itself.

- Formula Bar: Select the cell, then click in the formula bar. Make the needed correction. Then press Enter or click on the green check mark in the Formula bar.
- In the Cell:
  Either:
  o Select the cell and begin typing. What you type will erase the current information in the cell.
  -OR-
  o Double click on the cell. A cursor will appear in the cell. Move the cursor to where you need to make your changes. Make the changes. Then press Enter.

## Canceling/Undoing Changes

Cancelling actions

- If you haven't yet pressed Enter while entering or editing information in a cell, press the Esc key or click on the "X" button on the formula bar.

Undo/Redo Actions

  To Undo Your Most Recent Action

- Click the Undo button  on the Standard Toolbar.

To Cancel Your Most Recent Undo

Click on the Redo button  on the Standard Toolbar

## Clearing a Cell

Clearing a cell removes any data that is entered into the cell. The quickest way to clear a cell is to select one or more cells, then press the Delete key. This clears the contents, but leaves formatting and other cell contents intact.

To delete the cell entirely, click Edit on the main menu and select Delete. It will then ask you which way you would like to shift the other cells.

## Inserting Cells, Rows, Columns

### Inserting a Cell

1. Click on the cell where you would like to insert a new cell.
2. On the Home tab, click on Insert in the Cells group and then click Insert Cells from the list of choices.
3. Click on the circle that indicates which direction you would like to shift the existing cells.

### Inserting a Row

1. Click on the row where you would like to insert a new row.
2. On the Home tab, click on Insert in the Cells group and then click Insert Rows from the list of choices.
3. A new row will be inserted above the row containing the current active cell.

### Inserting a Column

1. Click on the column where you would like to insert a new column.
2. Click on the Home tab, click on Insert in the Cells group and then click Insert Columns from the list of choices.
3. A new column will be inserted to the left of the column containing the current active cell.

**The same options are available by right-clicking on the cell, column letter or row number and selecting Insert from the drop-down menu.
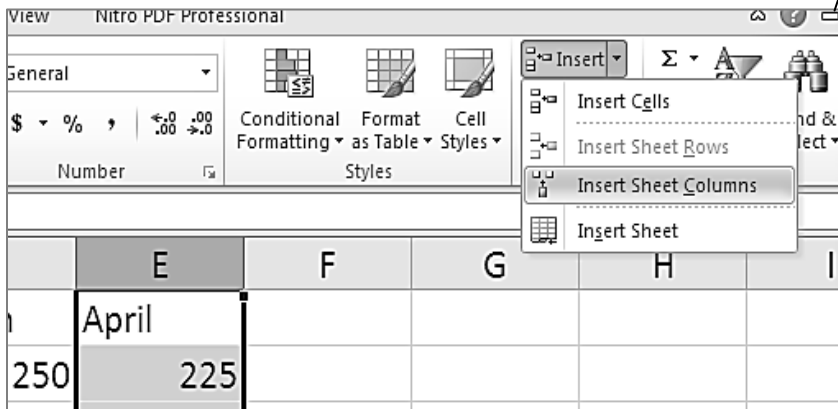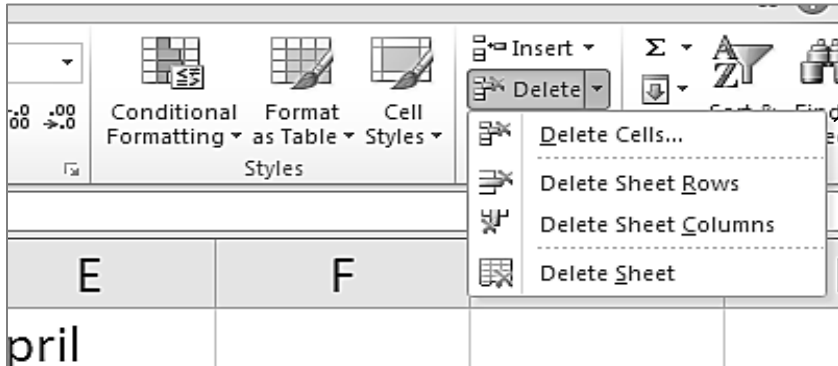
| | A | B | C | D | E |
|---|---|---|---|---|---|
| | | January | February | March | April |
| Food | | 200 | 150 | 250 | 225 |
| Utilities | | 75 | 100 | 125 | 90 |
| Entertainment | | 100 | 120 | 75 | 150 |
| Rent | | 700 | 700 | 700 | 700 |
| Totals | | | | | |

| B | C | D |
|---|---|---|
| January | February | March |
| 200 | 150 | 25( |
| 75 | 100 | 12! |
| 100 | 120 | 7! |
| 700 | 700 | 70( |

## Formatting Cells

Formatting cells allows you to control the various features of a cell. Whatever you enter into the formatted cell will conform to the format you chose. To format cells you must highlight the cells you want to format. To format:

- a single cell, click on it. Nonadjacent cells can be selected by holding down the control key and clicking on other cells with the mouse.
- a range of cells, click on a corner cell in the desired range, hold down the left button on your mouse and drag it over the desired range of cells. Multiple ranges can be selected by holding down the CTRL key on your keyboard and selecting additional cell ranges.
- an entire column, click once on the column heading (the letter at the top of the column), so that all of the cells in the column become highlighted.
- an entire row, click once on the row heading (the number at the beginning of the row), so that all of the cells in the row become highlighted.
- all of the cells in a worksheet, press Ctrl + A on your keyboard OR click the square in the upper left corner of the worksheet to the left of column A's heading.

7
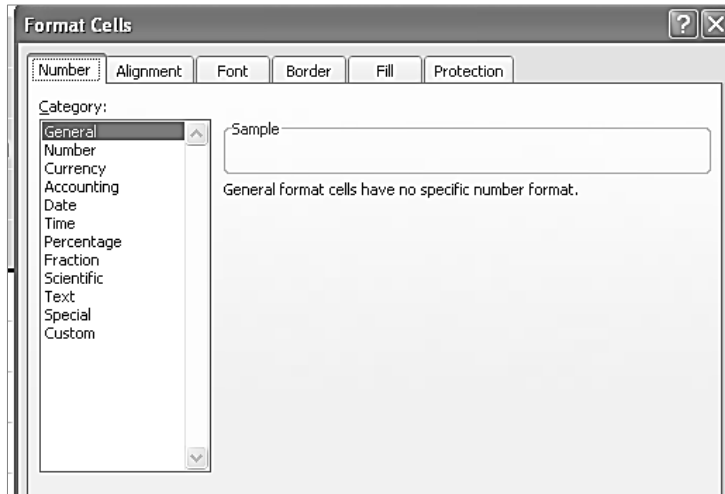
## Formatting Options

When formatting you can use the commands on the ribbon or those in the formatting window. Whatever option you choose, you must start by highlighting the cells you want to format. Once they are highlighted, go to the ribbon and choose the formatting option you want. Or, to use the **formatting window**, right-click anywhere inside the highlighted cells and from the drop-down menu select Format Cells.

Several formatting options are available:

- Numbers: format cells for a specific date or time layout
- Alignment: use alignment to control how text fills a cell, merge multiple cells into a single line and more
- Font: select the style and size of text
- Border: emphasize certain cells by choosing a different style of border
- Fill: choose a background color for your selected cells
- Protection: allows you to prevent those you share the spreadsheet with from making changes to it; you can also conceal certain cells
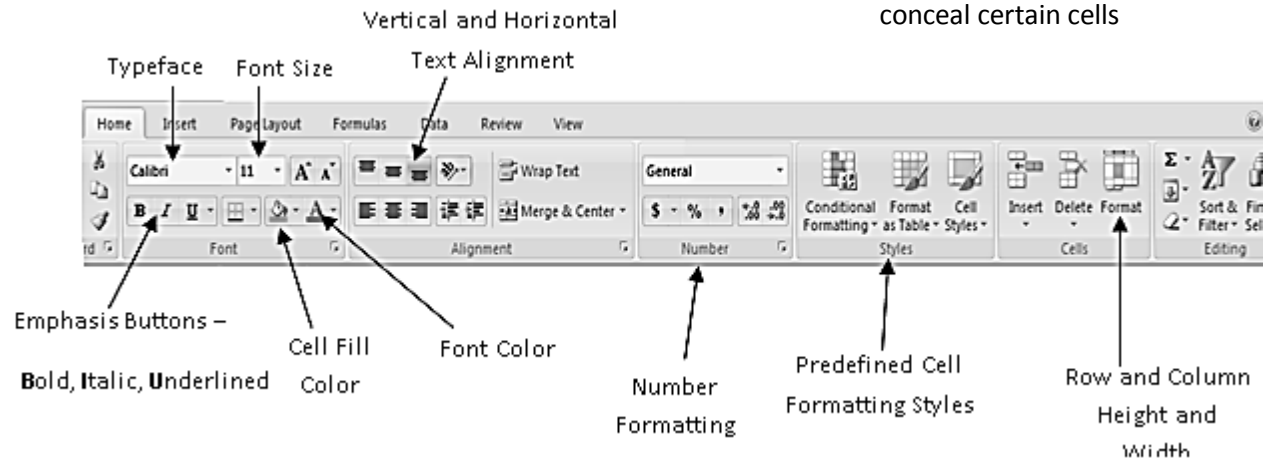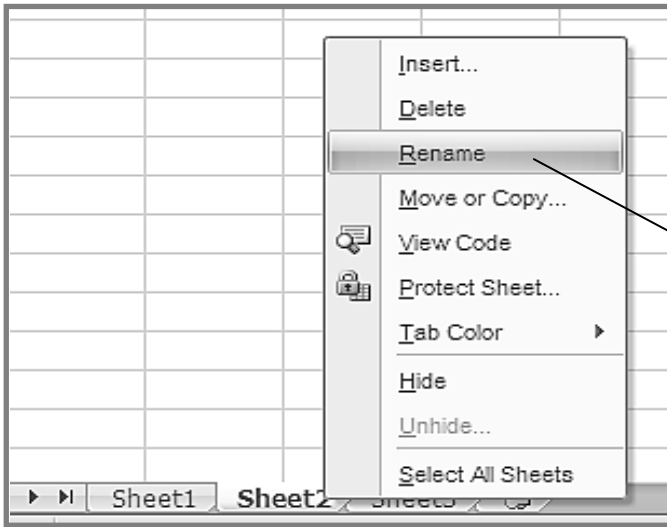
## Renaming, Adding, Reorganizing Worksheets

When you first open a new Excel Workbook, it gives you three sheets to work with.

## Renaming Worksheets

It is a good idea to rename the sheets to reflect what kind of information can be found on that sheet.  To rename the sheet do one of the following:

- Double click on the Sheet1 tab.
  -OR
- Right click on the sheet tab and select rename.

Any of these actions will cause the name in the sheet tab to be highlighted.  Once it is highlighted, you simply type in the new name and hit the Enter key. Try to avoid putting spaces in the titles of your worksheets. In a later class you will learn how to reference a worksheet, if it is continuous text and numbers.

## Adding Worksheets

If you need more than three sheets you can easily add more.

- Click on Insert in the Cells group and click Insert Sheet.
  -OR
- Click the New Sheet button to the right of the rightmost worksheet tab.
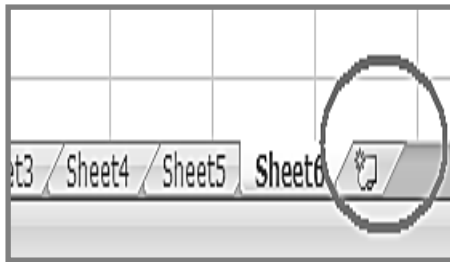
## Reorganizing Worksheets

If you need to reorganized your worksheets:

1. Click and hold down on the sheet tab of the sheet you wish to move and drag it to where you want it.
2. Release your mouse button to drop the sheet in the order that you like.



9
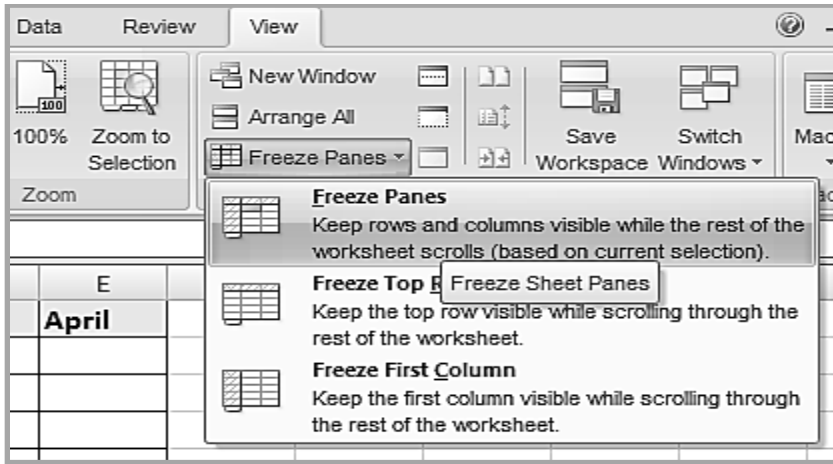
## Freezing Panes

You may have a column or row of cells that you want to hold in place or make visible at all times. You can freeze these 'panes' so that they do not scroll with the rest of the spreadsheet.

1. Click on the row or column just past the panes you want to freeze.
2. Click on **View** on the tab and select **Freeze Panes**.

To unfreeze the panes, simply click on **View** and select **Unfreeze Panes**.
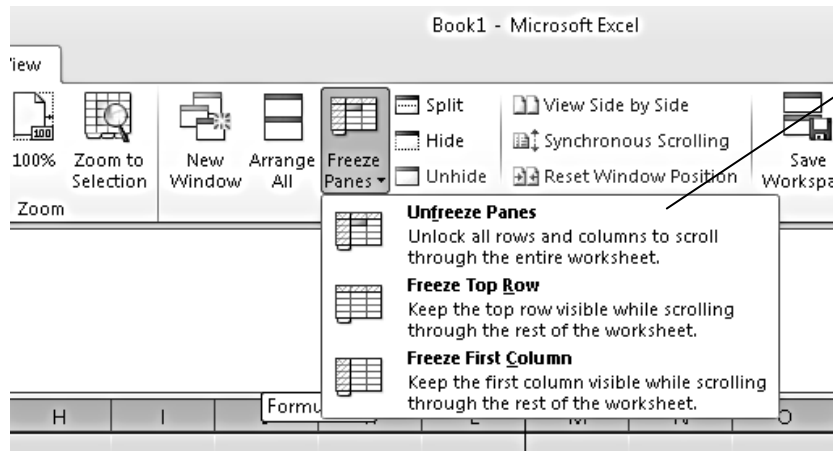
You can also freeze both a row and a column.

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| 1 | | January | February | March | April | |
| 2 | Food | 200 | 150 | 250 | 225 | |
| 3 | Utilities | 75 | 100 | 125 | 90 | |
| 4 | Entertainment | 100 | 120 | 75 | 150 | |
| 5 | Rent | 700 | 700 | 700 | 700 | |
| 6 | Totals | = | | | | |
| 7 | | | | | | |
| 8 | | | | | | |

SUM ▾ ● X ✓ ƒx =200+75+100+700

| | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | | January | February | March | April |
| 2 | Food | 200 | 150 | 250 | 225 |
| 3 | Utilities | 75 | 100 | 125 | 90 |
| 4 | Entertainment | 100 | 120 | 75 | 150 |
| 5 | Rent | 700 | 700 | 700 | 700 |
| 6 | Totals | =200+75+100+700 | | | |
| 7 | | | | | |

## Formulas

Formulas are a way of issuing commands in Excel. Most often, a formula is used as a calculation that can be entered into any cell and consists of a series of numbers (or cell references) and mathematical operators.

- Begin EVERY formula with an equal sign (=).

- After entering a formula, press ENTER to display the total.

## Using Mathematical Operators

The math operators you can use in constructing a formula include the following:

+ for addition        - for subtraction
* for multiplication    / for division

For example, you could enter =4+6 into a cell to have it display the result 10.

## Using Four Sum Methods

Let us explore four methods of performing operations in Excel and the advantages and disadvantages of each.

## Sum Method 1

1. Click on cell B6.
2. Enter the simple formula =200+75+100+700 into B6.
3. Press Enter.

11

## Sum Method 2, cell references

1. Click on cell C6.
2. Enter the formula =C2+C3+C4+C5. (C2, C3, etc are known as cell references)
3. Press Enter.

Once you have entered the formulas and found the totals, try entering a different number in both column B and C for Food. What happened to the totals in cell B6 and C6?

The total for column B stayed the same. The total for column C adjusted to the updated information. The formula for column B did not change because it used actual numbers. The formula for column C changed because it referenced the position of the information being added.

| SUM | | ▼ | ○ X ✓ *fx* | =C2+C3+C4+C5 | |
|---|---|---|---|---|---|
| A | B | C | D | E |
| | January | February | March | April |
| Food | 200 | 150 | 250 | 225 |
| Utilities | 75 | 100 | 125 | 90 |
| Entertainment | 100 | 120 | 75 | 150 |
| Rent | 700 | 700 | 700 | 700 |
| Totals | 1075 | =C2+C3+C4+C5 | | |

## Sum Method 3, a series

If you wanted to add many cells of information together, you probably do not want to type in the cell reference for each cell such as in Method 2. Excel has several shorthand formulas for common calculations, one of which is the sum formula below:

=SUM(beginning cell reference: ending cell reference)

1. Click on cell D6.
2. Enter the formula =SUM(D2:D5)
3. Press Enter.

The colon **:** between the two cell references indicates a series of values and tells Excel to include all of the cells within that range of values. There can be no blank cells within the range.

(The comma **,** between two cell references indicates non-consecutive cell references from anywhere on the spreadsheet.)

| SUM | | ▼ | ○ X ✓ *fx* | =SUM(D2:D5) | |
|---|---|---|---|---|---|
| A | B | C | D | E |
| 1 | | January | February | March | April |
| 2 Food | 200 | 150 | 250 | 225 |
| 3 Utilities | 75 | 100 | 125 | 90 |
| 4 Entertainment | 100 | 120 | 75 | 150 |
| 5 Rent | 700 | 700 | 700 | 700 |
| 6 Totals | 1075 | 1070 | =SUM(D2:D5) | |
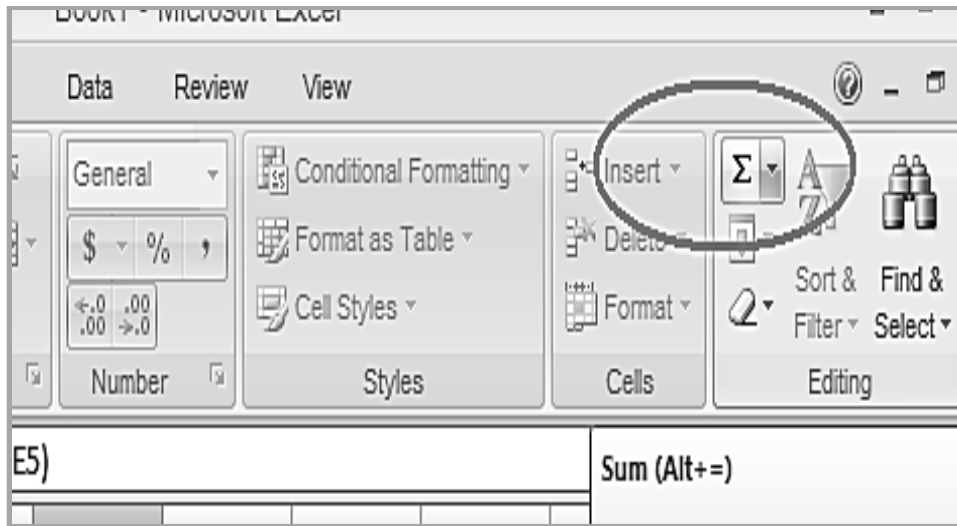
## Sum Method 4, the AutoSum feature

Excel also has a convenient AutoSum button that automatically generates a sum formula.

1. Start by selecting a cell below the column of numbers or to the right of the row of numbers that you would like to add together.

2. Then click on the **AutoSum** button on the standard toolbar.

3. Press the **Enter** key. AutoSum will total up the row or column for you.

The AutoSum looks above the active cell for two or more numbers to add together. If there are no numbers above, it looks for two or more numbers to the left of the active cell to add together. If there is a break in the numbers above or below, the AutoSum will not include information past one empty cell in the summation.

Click on E6 and then the AutoSum button to AutoSum column E.

## Using Excel to Make Budgets

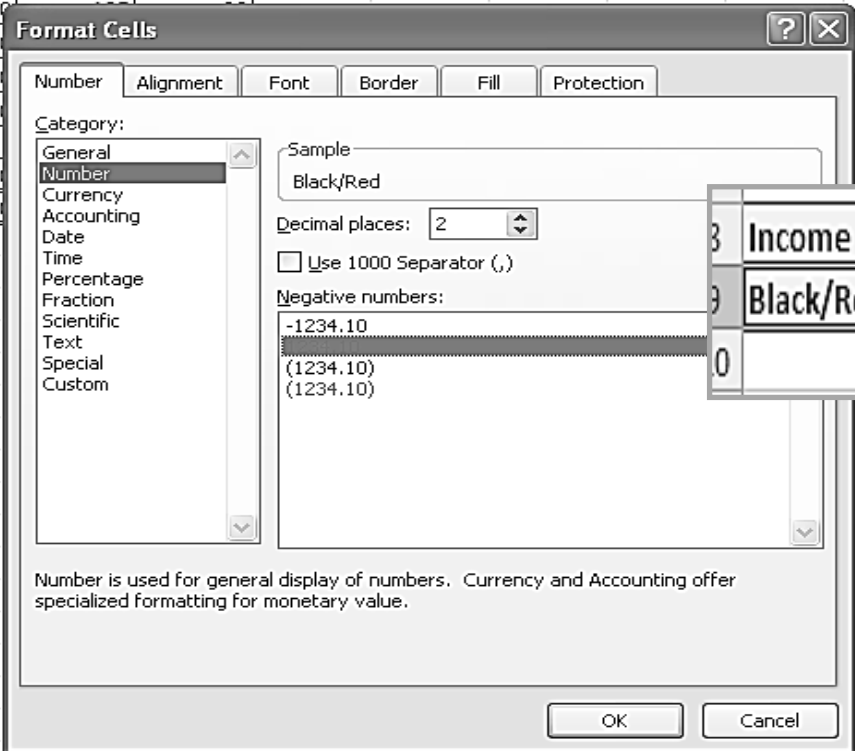A very popular application of Excel that utilizes the SUM function is making budgets.

1.  Make the above additions to your spreadsheet.  Be sure that cells B6:E6 are set to sum the values of the cells above them.

2.  In cell B9, type =B8-B6

3.  With cell B9 still active, place your cursor on the square in the bottom right corner of the cell.  You will see it change into a skinny black cross.  Hold down your left mouse button and drag your cursor over C9:E9.  Notice that Excel has copied the formula across the row and applied it to its corresponding column!  Whenever you have a formula in a cell, Excel will copy that rather than the data, and apply the formula to those new cells.

4.  Select the range B9:E9.

5.  From the **Home** tab, click on **Cell Styles**, and then click on **New Cell Style**.

6.  Click on **Format** and then **Numbers**. In the center of the dialog box that opens you will see Negative numbers.  Click the second option to make negative numbers red, and then click OK.

7.  Any negative numbers in row 9 should now show up in red.  This highlights any months where our expenses were greater than our earnings.  Because the SUM and AutoSum functions add values of cells using a formula, our Black/Red values will change as the expense values change.

| | A | B | C | D | E |
|---|---|---|---|---|---|
| | | January | February | March | April |
| 2 | Food | 200 | 150 | 250 | 225 |
| 3 | Utilities | 75 | 100 | 125 | 90 |
| 4 | Entertainment | 100 | 120 | 75 | 150 |
| 5 | Rent | 700 | 700 | 700 | 700 |
| 6 | Totals | 1075 | 1070 | 1150 | 1165 |
| 7 | | | | | |
| 8 | Income | 1000 | 1100 | 900 | 1000 |
| 9 | Black/Red | | | | |
| 10 | | | | | |

B9    fx

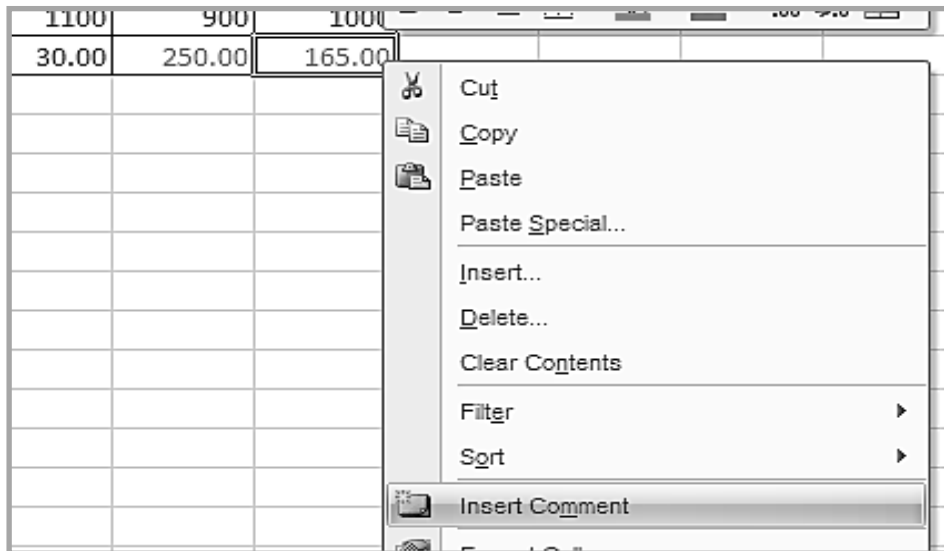| | A | B | C | D | E |
|---|---|---|---|---|---|
| 1 | | January | February | March | April |
| 2 | Food | 200 | 150 | 250 | 225 |
| 3 | Utilities | 75 | 100 | 125 | 90 |
| 4 | Entertainment | 100 | 120 | 75 | 150 |
| 5 | Rent | 700 | 700 | 700 | 700 |
| 6 | Totals | 1075 | 1070 | 1150 | 1165 |
| 7 | | | | | |
| 8 | Income | 1000 | 1100 | 900 | 1000 |
| 9 | Black/Red | =b8-b6 | | | |
| 10 | | | | | |

SUM    X ✓ fx  =b8-b6

14

**Formatting Numbers for Budgets**

1. Select the range B9:E9.

2. From the Home tab, click on **Cell Styles**, and then click on **New Cell Style**.

3. Click on **Format** and then **Numbers**. In the center of the dialog box that opens you will see Negative numbers.  Click the second option to make negative numbers red, and then click **OK.**

4. Any negative numbers in row 9 should now show up in red.  This highlights any months where our expenses were greater than our earnings.  Because the SUM and AutoSum functions add values of cells using a formula, our Black/Red values will change as the expense values change.

| 1100 | 900 | 1000 |
| --- | --- | --- |
| 30.00 | 250.00 | 165.00 |

Context menu:
- ✂ Cut
- 🗐 Copy
- 📋 Paste
- Paste Special...
- Insert...
- Delete...
- Clear Contents
- Filter ▶
- Sort ▶
- Insert Comment

| 90 |
| --- |
| 150 |
| 700 |
| 1165 |
| |
| 1000 |
| 165.00 |

mis:
You have overspent!

## Adding Comments to Cells

You can easily add comments to cells that will only appear when you mouse over the cell. Simply right click on the cell and select Insert Comment. A blank yellow note will appear. Type in your comment, and then close the comment by clicking on the desktop on a spot away from the yellow note. You will notice that the cell with the comment now has a small red triangle in the corner. To read the comment, simply rest your mouse on the cell.
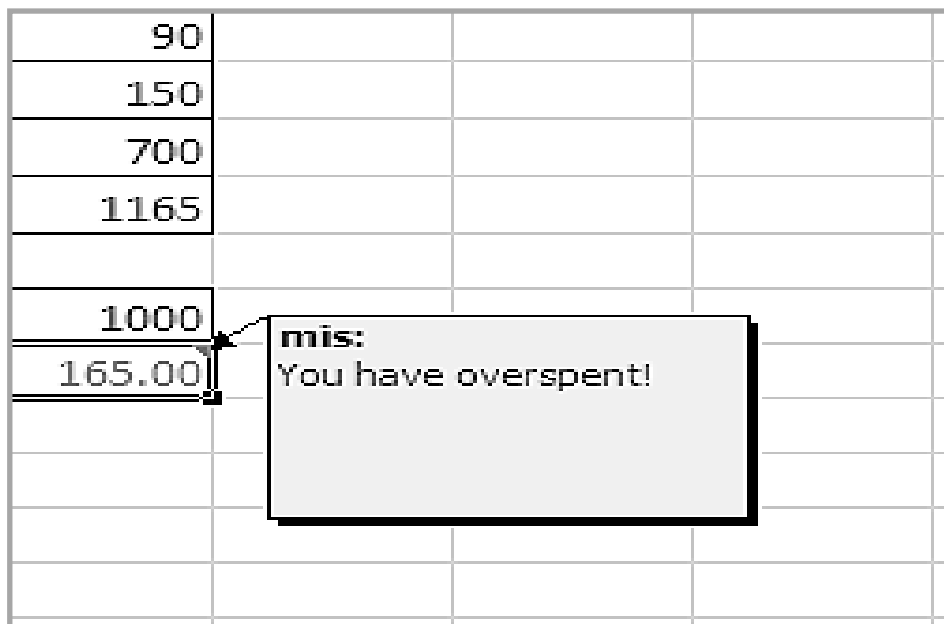
## Creating Charts and Graphs

Excel makes it easy to turn your data into colorful charts and graphs.
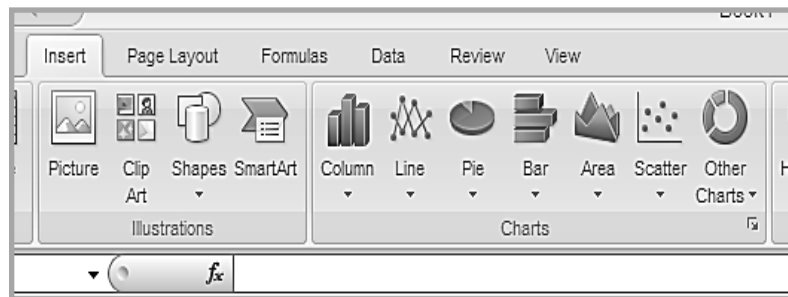To create a chart:

Select the range A1:E5.

On the Insert tab in the Charts group, you will see the different chart types that you can choose from.

Select the type of chart that you would like to create.  Remember that not all chart types are appropriate in all situations.  Because a column graph would allow you to examine many trends at once, it will work particularly well here.

Next, place your cursor over the chart and right click.  This will let you enter names for the items in your legend.

Below are some highlights of what is available. Click on the Layout tab to see the following options:

| A | B | C | D | E |
|---|---|---|---|---|
| | January | February | March | April |
| Food | 200 | 150 | 250 | 225 |
| Utilities | 75 | 100 | 125 | 90 |
| Entertainment | 100 | 120 | 75 | 150 |
| Rent | 700 | 700 | 700 | 700 |
| Totals | 1075 | 1070 | 1150 | 1165 |
| | | | | |
| Income | 1000 | 1100 | 900 | 1000 |
| Black/Red | 75.00 | 30.00 | 250.00 | 165.00 |

**Formatting Charts and Graphs**

- Titles - you can name your chart as well as name the x and y axis of the chart. (The x axis is horizontal and the y axis is vertical.)

- Axes – from here you can choose not to display either axis.

- Gridlines – allows you to select how many gridlines you want on your chart. Remember that having too many can sometimes be distracting.

- Legend – This will allow you to turn the legend on or off. If you decide to leave it on, it will also let you select its placement.

- Data Labels – you can choose to have labels applied to your chart. Be aware that if there are several labels they may overlap and prove hard to read.

1. Data Table – This allows you to display the data Below are some highlights of what is available. Click on the Layout tab to see the following options:

- a table right next to the chart. This is helpful if you want the chart to be placed on its own sheet at the next step.

2. After you have chosen the options that you would like for your graph or chart, click OK.

You now have a new graph or chart. You can move it around the page or resize it like any other drawing object.

It may be necessary to fine-tune or make some changes to your chart. To do so, you can either right click on the whole chart again, or just the area of the chart you would like to change.
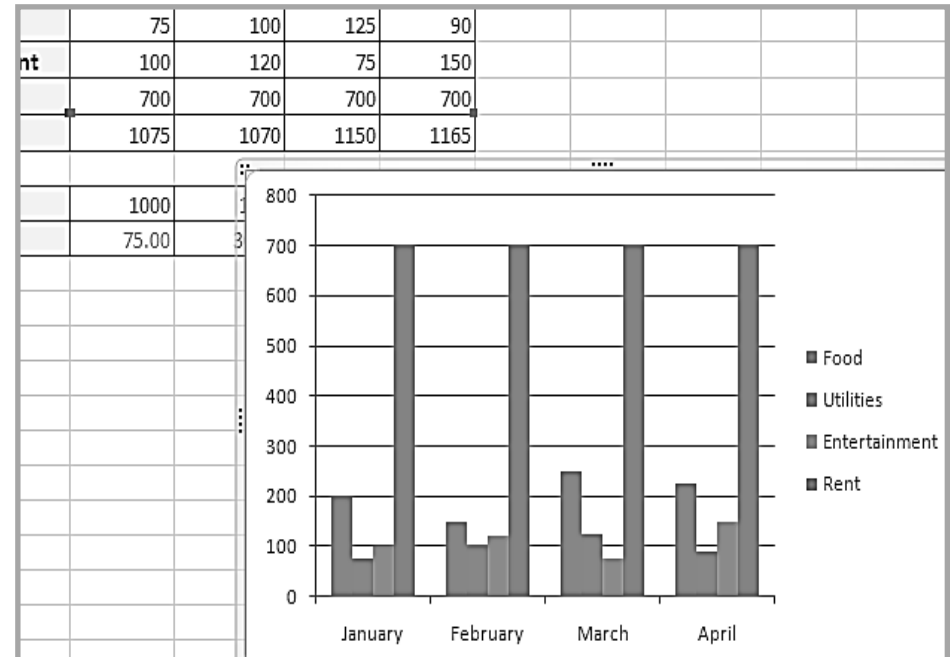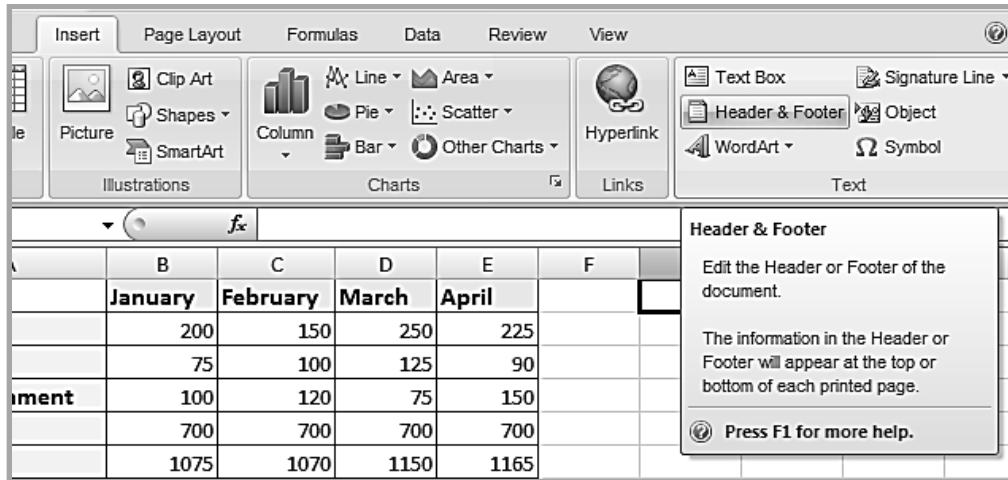
## Headers & Footers

You may want to add a title to your spreadsheet. The easiest way to do this is by adding a header.

## Adding a header

To add a header to your spreadsheet:

1. On Insert tab, select Header and Footer and click on Custom Header.

2. Decide where you want your title to appear on the printed sheet (centered, left corner, right corner) and type in your title. You can format your title by clicking on the "A". When you've formatted your title, click OK.

3. Click on the File tab, select Print and then Print Preview to see how your header is going to look when printed.

4. If you are satisfied with its appearance, then click close.

5. If you are not satisfied with its appearance, click close and follow steps 1 through 3 to until you are satisfied with your header's appearance.
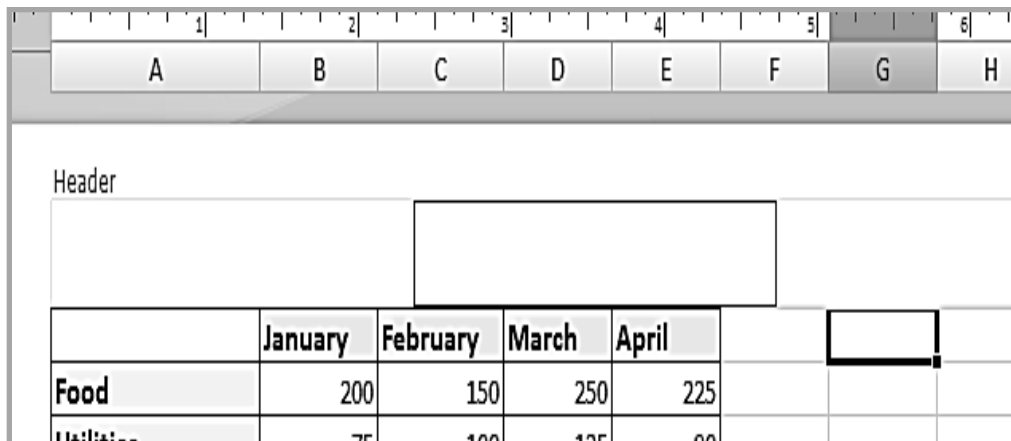
## Page Layout & Printing

Gridlines – If you go to **Print Preview** by clicking on the File tab in the top left hand corner and then Print and finally **Print Preview**, you will notice that the **gridlines** do not print out on your spreadsheet. However, if you want the gridlines to print out, you can turn this feature on. Go to the **Page Layout** tab and in the **Sheet Options** group check the print box under the gridlines heading. Now look at your **Print Preview**, and you will see the gridlines will have appeared. Adding gridlines to areas with colored backgrounds involves a separate step. Highlight the area that needs gridlines. Click the dropdown arrow to the right of the borders icon in the Font group on the Home tab and choose the all borders option.
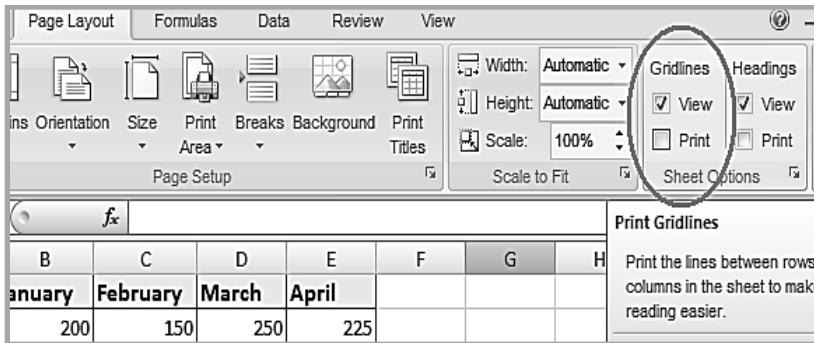
### To print your spreadsheet:

1. Click on the **File tab**
2. Hover your cursor over **Print**
3. Click the printing option you want to use

### To fit your spreadsheet to the page:

1. Click on the MS Office button
2. Hover your cursor over **Print**
3. Click **Print Preview**
4. Click **Page Setup** in the Print group of the Print Preview tab.
5. Click the circle next to fit to: and type 1 in the page width box.
6. Your spreadsheet will now resize itself to the width of a single sheet of paper.
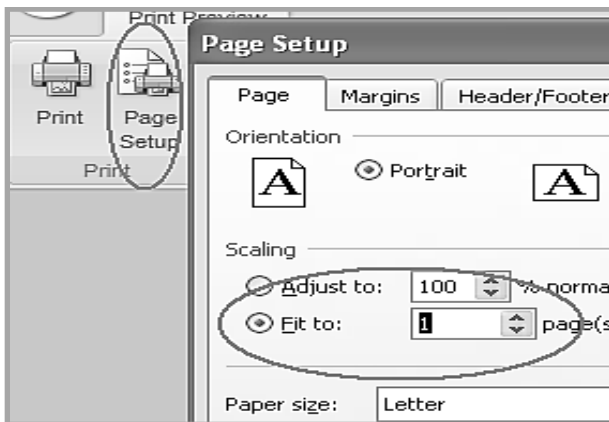
## Help & Training with Microsoft Excel

If you have a question about Excel that you need answered right away, you can consult Excel's built in help feature.  You can access this feature by pressing the F1 key on your computer keyboard or clicking on the question mark in the top-right corner. From there click on a help topic or search for one using Excel's help search box located near the top of the Excel Help window.

For training on Excel consider Microsoft's free offerings: **office.com/training**

Don't forget to try a general Google or YouTube search. There are numerous websites and YouTube channels devoted to providing tutorials on Excel. However, they are also of varying quality. Use your discretion.

The Library carries several different series of computer training books, including the Dummies, Teach Yourself Visually and other series.