

**Introduction**

**to**

**Microsoft**

**Excel**

**2010**

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## **Getting Started**

Today we'll be talking about Microsoft Excel at an introductory level. This class does require that you have some basic computer skills, and experience with Microsoft Word will help greatly.

### **What is Excel?**

Microsoft Excel is a specialized piece of software that does spreadsheets. A spreadsheet application allows you to create tables of text, numbers, and formulas. You can then take these tables and perform calculations, do data analysis and reporting, create "what-if" scenarios, and other tasks that would be rather tedious to do by hand.

Spreadsheets are made up of columns and rows. Where a column and a row cross, it's called a cell, and that's where the data is put. We'll look a little closer at this in a moment.

Because Excel organizes information and data, it is very useful both in your home life and for office-type tasks. You can use it to make and organize lists, such as an address book or guest list. Because of its capabilities to do mathematical equations, many use it to do a budget or balance a checkbook. It also makes charts and graphs, so it is nice for doing statistical analysis.

### **Starting up the program**

You will start Excel just like any other program, using either a shortcut on your desktop, or by the start menu.



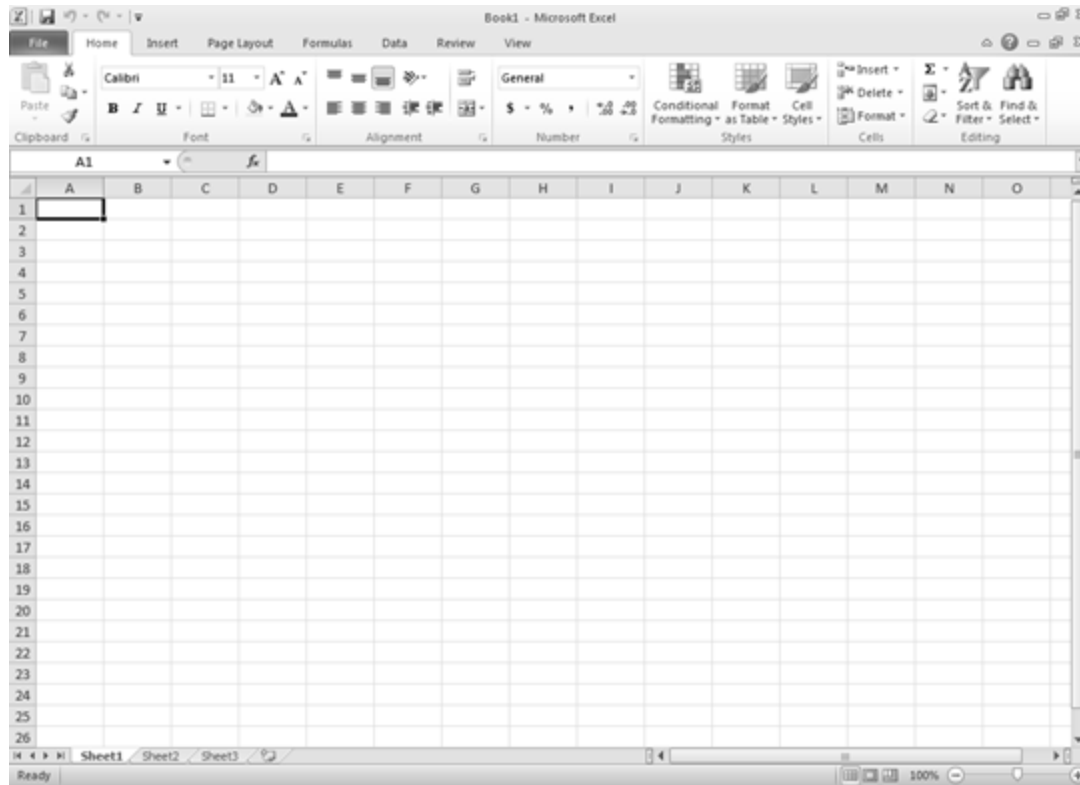
The desktop shortcut will look like this:

Otherwise, you can go to the **Start** menu, choose **Programs** (or **All Programs**), then choose **Microsoft Office**, and finally click on **Microsoft Excel**.

### **The Excel window**

Once you have the program started up, you'll notice that it has some parts that will be familiar to you, if you use Word. Other parts are unique to Excel, so let's take a moment to look at the different parts of the Excel window.

As we talk about each of the parts, label them on the diagram below:



**File Tab** - The File Tab always appears in the upper left corner of the screen. It contains common programs functions like Open, Save, and Print.

**Ribbons** – Typical Microsoft Office 2007 Ribbons for accessing functions

**Formula bar** – Where formulas are displayed

**Row** - horizontal component of a spreadsheet, labeled with numbers. Excel has up to 16,384.

**Column** – vertical component of a spreadsheet, labeled with letters. Excel holds up to 256.

**Cell** - created by a row and column crossing. These are identified by their row number and column letter, which is called their “Cell Reference”. In the picture above, cell “A1” is highlighted. You can have over 4 million cells in one worksheet, and up to 16 worksheets in one workbook – that’s a whole lot of data!

**Worksheet** – Individual spreadsheets contained in the same file (aka “Workbook”)

### **Making a new workbook, saving, getting help, etc**

Because Excel is a Microsoft program, a lot of the basic file functions that you’re used to will work just the same. Under the **File Tab**, you’ll find that you can create a new file, open a previously-created file, save the file you’re working on, do a print preview, etc.

Our example will be a record of pretend household expenditures that we have already created named: “Household Expenses.”

Additionally, there is the **Help** icon. This will allow you to search for information on how to perform a specific task, and receive step-by-step instructions.

## Moving Around on the Worksheet, Using Worksheets

### What's "the active cell"? How do I change it?

The active cell is the cell that is currently being worked in. In order to type data into a cell, the cell must be active. You can identify the active cell because it will have a darker border around it.

Watch as the instructor shows several different active cells. Can you give the cell reference/name?

### *Using the keyboard to change the active cell*

You can move around the spreadsheet using various keys on the keyboard to change what the active cell currently is. \*Of those listed below...**Ctrl-Home** and **Home** and most useful.

The **arrow keys** will move the active cell up, down, left, and right. The **Tab** key will move the active cell one column to the right. The **Enter** key will move the active cell one row down. There are some additional special keyboard shortcuts in the table below:

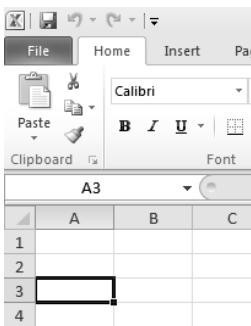
<i>Key Command</i>	<i>Effect</i>
<b>F5</b>	Gives you the "GoTo" command to skip to any cell in the spreadsheet.
<b>Page Up</b>	Moves the active cell one screen up.
<b>Page Down</b>	Moves the active cell one screen down.
<b>Alt-Page Up</b>	Moves the active cell one screen to the left.
<b>Alt-Page Down</b>	Moves the active cell one screen to the right.
<b>Home</b>	Moves the active cell to the first column in the current row.
<b>Ctrl-Home</b>	Moves the active cell to cell A1.
<b>Ctrl-Page Down</b>	Changes to the next worksheet to the right.
<b>Ctrl-Page Up</b>	Changes to one worksheet to the left.

❖ Take a moment to move around the worksheet using just the keyboard.

### *Using the mouse to change the active cell*

Place the mouse pointer of the cell you wish to make active. Click the left mouse button.

You can also click into the "Name Box" in the upper left side of the screen, and type a cell location there. When you hit **Enter**, you will move to the cell whose name you typed.



Take a moment to move around the worksheet with the mouse.

Are there times you think it might be faster to use one way or the other?

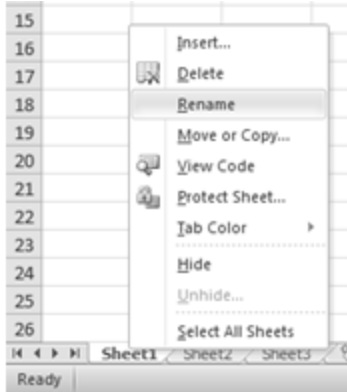
### **Renaming, adding, deleting, rearranging worksheets**

Excel allows you to have multiple worksheets in one workbook (which is a single file with the same name). This lets you group data that's related, but still maintain a level of separation between various parts. In the example we'll be working through today, we'll be making a workbook called

“Household Spending”, and have a separate worksheet for each month of the year.

### *Renaming a worksheet*

To rename an existing worksheet, **right-click** on the worksheet’s tab at the bottom of the window. Choose **Rename**.

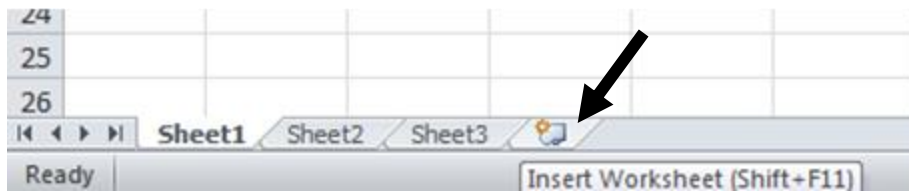


The worksheet name will be highlighted; simply type in the new name.

- ❖ Let’s do this: Rename the first worksheet tab: *January*. Rename the second worksheet tab: *February* and rename the third worksheet tab as: *March*.

### *Adding a worksheet*

There are times when you will want more than the default three worksheets. Since Excel can hold up to 16 in a workbook, you can add more as you need them. There are 4 methods...here is one of them:



One Method:

You can **left-click** on the unnamed worksheet’s tab, then...**right click** and choose: **Rename** and type: April.

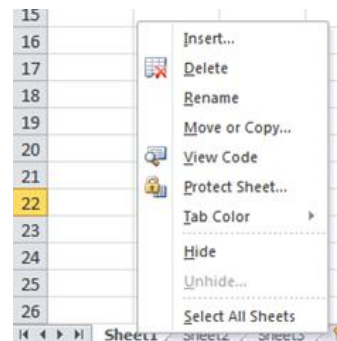
### *Deleting a worksheet*

You can also delete extra worksheets that you no longer need. There are again two ways to delete.

#### One Method:

Open the worksheet you want to delete. (This is VERY important, as Excel will automatically delete whichever worksheet is open currently!)

Right-click on the sheet you wish to delete, and choose **Delete**.



## Resizing, Adding, Deleting Columns and Rows

In addition to making changes to entire worksheets, you can delete a single column or row. You can also adjust the size of them, to make them larger or smaller to better display your data.

### *Resizing a column*

To resize a column, position your mouse pointer on the right edge of the column header for your target column. Your pointer will change to a vertical bar with two arrows on it. You can now left-click and drag the column to be wider (move right) or narrower (move left).

- ❖ **Change a couple of columns to be various widths.**

Additionally, if your column already had data in it, you could double-click in that same location and it would automatically adjust to be as wide as the widest text.

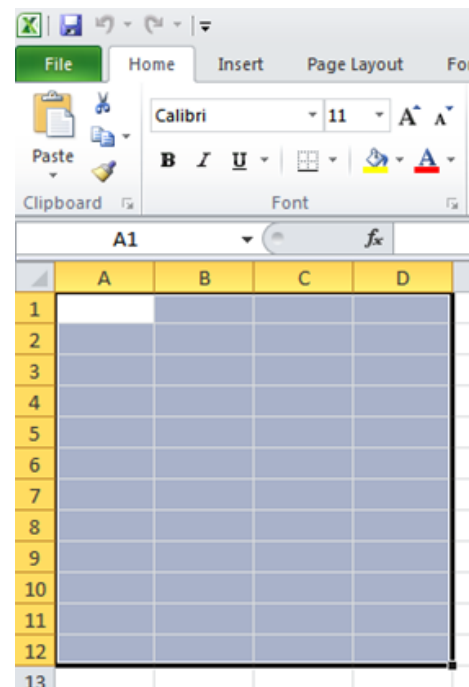
### *Resizing a row*

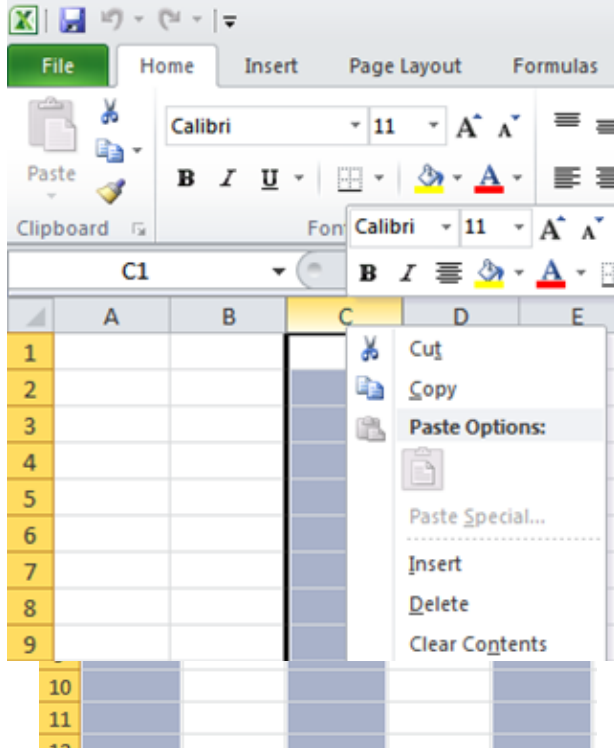
The technique to resize a row height is almost identical to changing a column width. Position your mouse pointer on the bottom edge of the row header for the row you wish to change. When your pointer changes to the horizontal bar with two arrows, left-click and drag the row to be taller (move down) or shorter (move up). As with changing a column height, the double-click technique will work to automatically size the row.

- ❖ **Change a couple of rows to be various heights.**

### ***Resizing Multiple Columns***

Excel gives you a way to change multiple columns to the same width simultaneously. To do this, you will need to first select the columns you wish to resize. If they are side by side, you can click the header of the leftmost column, hold down the **Shift** key, and then click the header of the rightmost column. All of the columns in between will now be highlighted.





If you wish to resize non-adjacent columns, hold down the **Ctrl** key, and click on each of the columns you wish to choose. They will be highlighted as before.

Once you have the columns selected that you wish to resize, follow the same technique you would use to resize any single column – if you resize any one of the highlighted columns, they will all change to be the same width!

**Practice selecting and resizing multiple columns, both side-by-side and spaced out.**

#### *Resizing multiple rows*

You can use the same technique on resizing multiple rows as you do for multiple columns. Select the rows you wish to resize (using the **Shift** key for adjacent rows, the **Ctrl** key for non-adjacent rows), then change the size on any one of them. The rest will follow!

### ***Deleting a Column***

If you no longer need a particular column, you can delete it to help keep your spreadsheet clean looking. Click the column header of the column you wish to delete to highlight it. Once again...there are 2 ways of deleting a column...here is one method:

#### One Method:

Right-click on the column header you wish to remove, and choose **Delete** from the menu that appears. All of the other columns will shift to the left.

### ***Deleting a row***

As with deleting a column, it is easy to delete extra rows you do not need. Simply select the row header of the row you wish to delete to highlight the entire row. From there, follow the “right-click” technique.

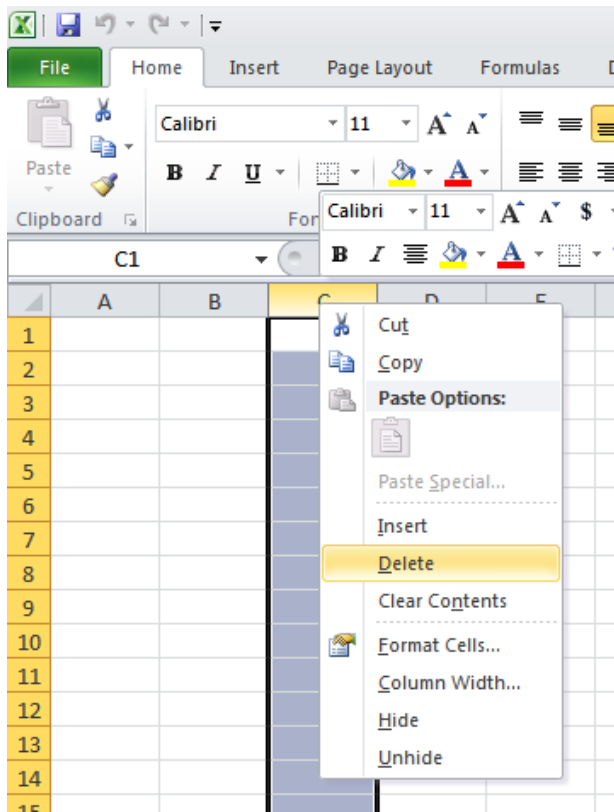
1. **Practice removing a few rows. Delete some individually and then some multiples.**

## ***Adding a Column***

You may find sometimes that you need to add a column in between two existing columns. There are, again, two ways to do this. Here's one way, start by highlighting the column to the RIGHT of where you want your new column. (So if you wanted it between existing columns B and C, you would click on the header for column C).

### One Method:

**Right-click** on the column header for the highlighted column. Choose **Insert**. Excel will automatically add a column to the left of your current location.



## Adding a Row

To add a row, you will follow the same process as adding a column. Simply choose the row BELOW the location of the new row and “right click” and select: **Insert**.

❖ Practice by adding a few rows at various places in the worksheet.

## Entering and Editing Data

Now we get into the good stuff – getting your information into Excel so you can make it work for you!

### Typing Data in a Worksheet, Types of Data

As you might expect, this is simply a matter of typing the data you have into the appropriate place in the worksheet. Which ever cell is the active cell will be the recipient of what you’re keying in. From our discussion on moving around the worksheet, you will know that you can move the active cell by using either the keyboard or the mouse, or some combination thereof.

It helps to think of three types of data that you may put into Excel. These are: *labels*, *constants*, and *formulas*.

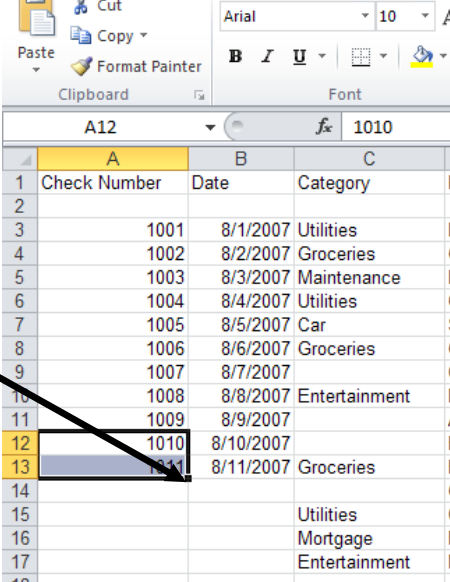
Data Type	Description	Examples
<i>Labels</i>	Anything that is just text, meant to help a person understand the spreadsheet	Check Number Recipient Address Line 1
<i>Constant</i>	Any numbers that are not automatically calculated	\$5.75 1,047 22
<i>Formulas</i>	Equations/calculations. Could be numbers, cell references, functions, or a combination. Always starts with an =	=5+3 = C2 * D12 = SUM(B23:B25)

### Autofill

Excel has a tool called “AutoFill” that allows you to fill in large groups of numbers or dates without having to type each of them in. The tool will detect patterns and continue them for you.

To make use of the tool, we will use the monthly budget spreadsheet file that is already created. Select the last two **Check Number** cells that contain the data as it appears to your right.

The most important part of the picture above is the small black square in the bottom right corner of the selected area. To fill in additional cells, you simply click-and-drag that box down as many rows as you wish to autofill. (Autofill will also work across columns, if you enter your original data that way).



	A	B	C
1	Check Number	Date	Category
2			
3	1001	8/1/2007	Utilities
4	1002	8/2/2007	Groceries
5	1003	8/3/2007	Maintenance
6	1004	8/4/2007	Utilities
7	1005	8/5/2007	Car
8	1006	8/6/2007	Groceries
9	1007	8/7/2007	
10	1008	8/8/2007	Entertainment
11	1009	8/9/2007	
12	1010	8/10/2007	
13		8/11/2007	Groceries
14			
15			Utilities
16			Mortgage
17			Entertainment
18			

## Let's do this!

In this same worksheet, practice doing the following:

1. Filling in a series of sequential numbers (1012, 1013, 1014 & 1015).
2. Filling in a series of dates (8/12/2007, 8/13/2007, 8/14/2007 & 8/15/2007)
3. Filling in a series Category patterns (Utilities, Entertainment & Car).

## Editing a cell by keyboard and mouse

To enter data, use either the keyboard or mouse to the cell where you wish to enter data. If you find that you need to change a cell where you have already entered information, simply make that cell active again (using either the keyboard or the mouse), and enter your changes.

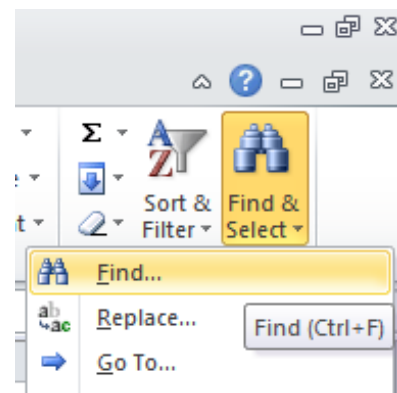
Re-create the spreadsheet shown below. Use the techniques above to adjust your column widths to be wide enough for what they contain. Use the autofill technique to fill in the “check number” column, “date” column and “Category” column.

	A	B	C	D	E	F	G	H
1	Check Number	Date	Category	Payee	Actual Amount	Budgeted Am	Notes	
2								
3	1001	8/1/2007	Utilities	Dominion East Oh	\$144.00	\$144.00		
4	1002	8/2/2007	Groceries	Giant Eagle		\$75.00		
5	1003	8/3/2007	Maintenance	Lowe's	\$27.50		0 sink replacement parts	
6	1004	8/4/2007	Utilities	Ohio Edison (Electric)		\$65.00		
7	1005	8/5/2007	Car	Shell Gas	\$32.78	\$30.00		
8	1006	8/6/2007	Groceries	Giant Eagle	\$63.29			
9	1007	8/7/2007		City Water & Sew	\$37.87	\$45.00		
10	1008	8/8/2007	Entertainment	Netflix	\$8.99	\$8.99		
11	1009	8/9/2007		Applebee's	\$23.47	\$30.00		
12	1010	8/10/2007		Erie Insurance	\$285.23	\$285.23	Quarterly Payments	
13	1011	8/11/2007	Groceries	Heinen's	\$77.41	\$75.00		
14					\$29.43	\$30.00		
15			Utilities	City Sanitation/Tra	\$15.95	\$15.95		
16			Mortgage	Fifth Third Bank	1,042			
17			Entertainment					
18								
19								
20								

## Search and replace data

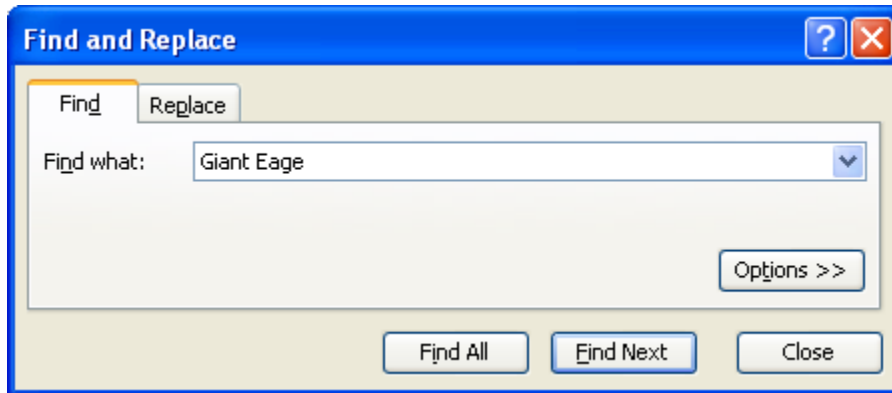
It is straightforward to find a particular piece of data in a spreadsheet, which can save you a lot of time if it is very large, and you are simply looking for a particular entry.

To use the search function, first make the A1 cell into active cell for your worksheet. Then go to the **Find & Search** function and choose **Find**.

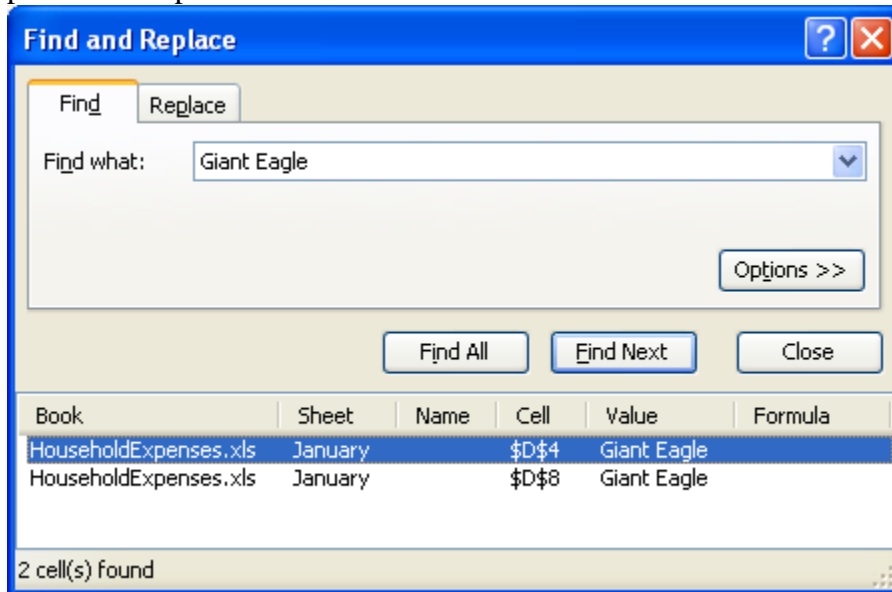


the

In the box that appears, type the word, phrase, or number you wish to search for and click the **“Find Next”** button. That will move the active cell to the next instance of your search criteria.



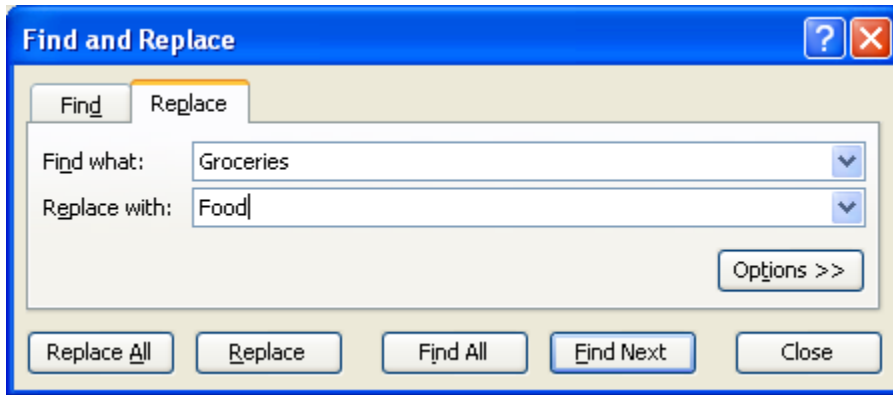
If you wish to know everywhere that your term appears on the worksheet, click the **Find All** button. A new section will get added to the “Find and Replace” window, listing each Cell location where your search term appears. You can click on each listing to go to that particular place in the spreadsheet.



Now that you've seen this done, work on your own spreadsheet and do a “Find Next” and a “Find All” for ‘Giant Eagle’.

Additionally, you may have noticed the “Replace” tab in the “Find and Replace” window. This will allow you to not only find a particular term, but gives you the option of replacing it with a different one. In our example, let's pretend we no longer want to use the category “Groceries”, because we've chosen to include dining out in that budget category. So we're going to find each instance of “Groceries” and replace it with the more-generic “Food”.

You simply type the term you're looking for in the "Find what" box, and the new term into the "Replace with" box. You can then choose to just replace the first instance of it (using the **Replace** button) or all instances of it (**Replace all**).



- ❖ Click the: "Replace all" on your worksheet, to change "Groceries" to "Food".

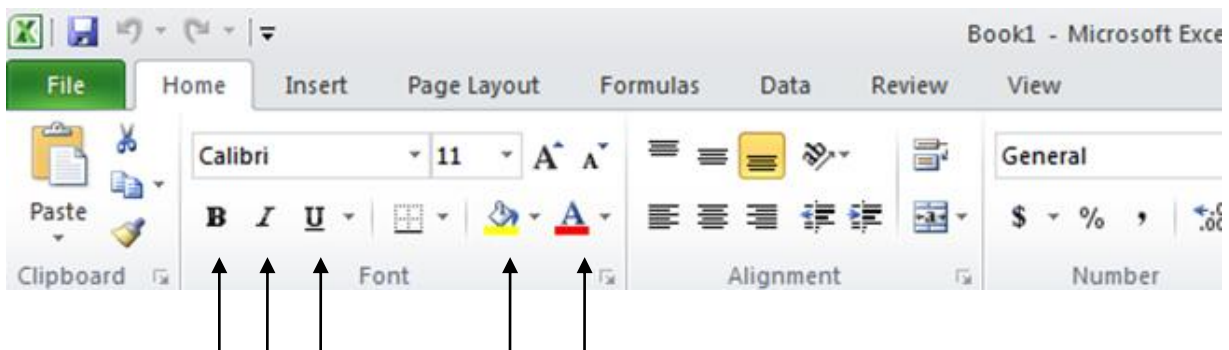
### Making your work look good (Formatting data and the sheet)

So now that you've gotten the basics of entering information, let's take a look at what we can do to make the important things really stand out.

#### **Formatting Text**

All of the usual techniques you already know from Microsoft Word will still work in Excel to format text.

Using the **Font Functional Area** on the **Home** Ribbon, you can make items **bold**, *italicized*, underlined, **or any combination**. You can also change to a different font (Arial, Times New Roman), or a different font size (10 for smaller font, 14 for bigger, etc).



You can also change the cell contents to be left-justified, right-justified, or centered in their particular column.

You could also change the background color of the cells with the paint can, or the color of the font. If you're familiar with tables in Word, you'll also recognize the icon to draw borders around areas of the spreadsheet.

Formatting changes only apply to the active cell(s). This makes the formatting very powerful, because you can make different sections of your spreadsheet have different formats for emphasis. This also means that you can make use of your skills to select multiple cells, an entire row or column, or a group of rows/columns, and apply the formatting to them all at once.

**\*\*In your practice spreadsheet, make these formatting changes (as shown below):**

1. row of column headings underlined and in bold
2. left-justify the “Check Number” column
3. make the contents of the “Category” column italicized
4. (optional) – choose a different font or font size for the whole sheet

	<b><u>Check Number</u></b>	<b><u>Date</u></b>	<b><u>Category</u></b>	<b><u>Payee</u></b>	<b><u>Actual Amount</u></b>	<b><u>Budgeted Amount</u></b>	<b><u>Notes</u></b>
3	1001	8/1/2007	<i>Utilities</i>	Dominion East Ohio Gas	\$144.00	\$144.00	
4	1002	8/2/2007	<i>Food</i>	Giant Eagle		\$75.00	
5	1003	8/3/2007	<i>Maintenance</i>	Lowe's	\$27.50		0 sink replacement parts
6	1004	8/4/2007	<i>Utilities</i>	Ohio Edison (Electric)		\$65.00	
7	1005	8/5/2007	<i>Car</i>	Shell Gas	\$32.78	\$30.00	
8	1006	8/6/2007	<i>Food</i>	Giant Eagle	\$63.29		
9	1007	8/7/2007	<i>Utilities</i>	City Water & Sewer	\$37.87	\$45.00	
10	1008	8/8/2007	<i>Entertainment</i>	Netflix	\$8.99	\$8.99	
11	1009	8/9/2007	<i>Entertainment</i>	Applebee's	\$23.47	\$30.00	
12	1010	8/10/2007	<i>Car</i>	Erie Insurance	\$285.23	\$285.23	Quarterly Payments
13	1011	8/11/2007	<i>Food</i>	Heinen's	\$77.41	\$75.00	
14	1012	8/12/2007	<i>Food</i>	Giant Eagle	\$29.43	\$30.00	
15	1013	8/13/2007	<i>Utilities</i>	City Sanitation/Trash	\$15.95	\$15.95	
16	1014	8/14/2007	<i>Mortgage</i>	Fifth Third Bank	1,042		
17	1015	8/15/2007	<i>Entertainment</i>	Netflix			

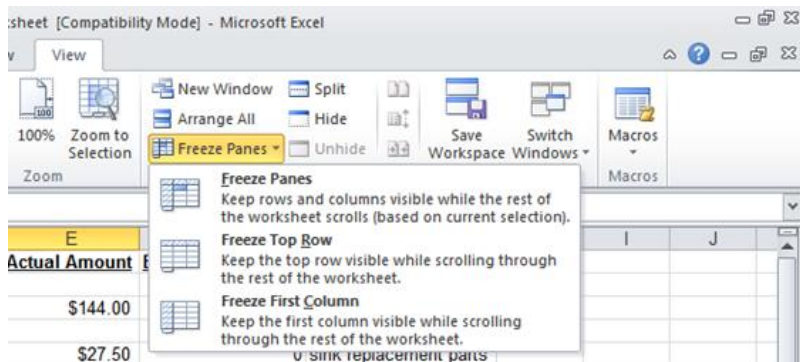
### Freezing Headings

Because tables full of numbers can be less-than-friendly to look at, when they get beyond one screen tall/wide, Excel allows you to “freeze” columns or rows so that they will never move off the screen. This allows you to create rows/headers that can function as labeled headers.

**To see why this could be useful, start scrolling right in your workbook; notice how the labels disappear?**

In order to use this function, first decide which rows and/or columns you wish to have showing at all times. The freeze will take effect in the row ABOVE the active cell, and the column to the LEFT of the active cell. This means that if you do not want to freeze a row, but merely a column, make sure you are in Row 1. Since there are no rows above it, the freeze will not affect any rows. If you want to only freeze a row, make sure you are in Column A.

Once you have made the appropriate cell active, choose the **View** ribbon, then **Freeze Panes** -> **Freeze Panes**.



❖ Decide somewhere on your sheet that you want to freeze, and do so.

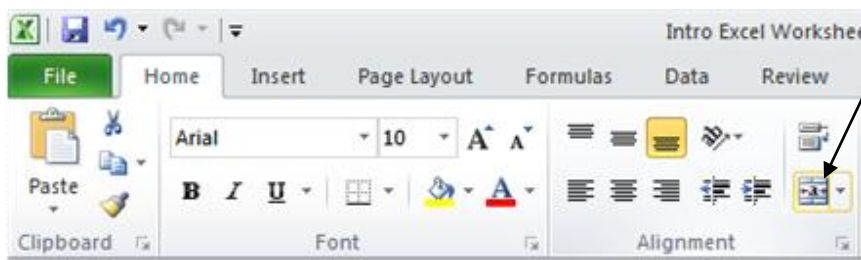
To unfreeze your sheet, go again to the **View** ribbon. You'll see that the option has now changed to **Freeze Panes** -> **Unfreeze Panes**. Click that to undo the freezing process. You can turn this on and off as many times as you wish in a spreadsheet; this can be useful if you have a huge sheet and you're doing a number of different processes on it.

❖ Unfreeze your worksheet. Then, freeze only Row 1 since that contains our headers.

### Centering titles

You can also make headers or individual cells that span more than one column, using a function called "Merge and Center". This can be useful to add a second level of information, or grouping multiple cells. It will combine multiple columns into a single one, and make that cell span all of the columns. (Note that this also works on rows)

To use this, first select the cells you wish to merge. Then click the "Merge and Center" icon in the **Home** Ribbon.



If there is data already in the cells, it will be combined into one. You can also make the new "super cell" active and edit/add data to it.

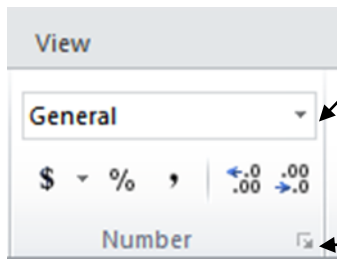
For practice, Click on: cell A24 and type: This class is really fun! Notice how these phrase encroaches into the next row. You could just expand the row, but...sometimes you may want to just expand that information into the cell next to it.

Now...Click on that cell and also on B24. This will select both cells. Now click the “Merge and Center” icon.

## Formatting Numbers

Excel has extensive options available to format all types of numbers, from different types of monetary notation to dates. You can, again, apply formats to one particular cell or a group of cells.

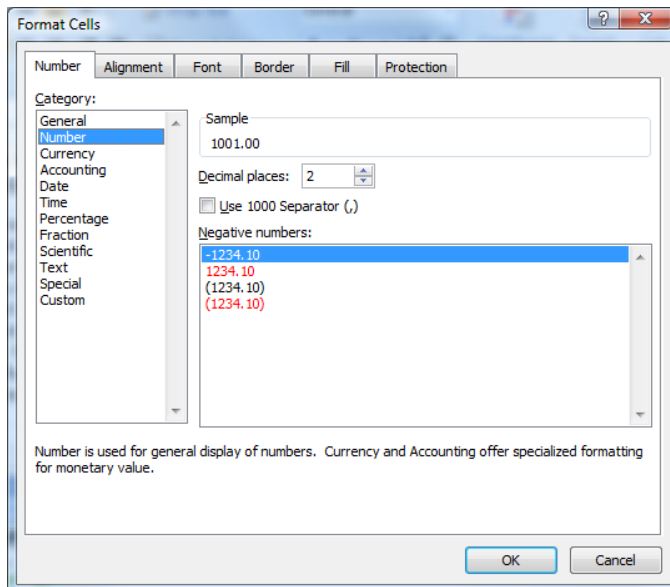
First, select the cell(s) you wish to apply the formatting to. Then in the **Home** ribbon, change drop-down box under the **Number** function area and choose the proper format.



Or you can Click the “More Options” icon (the downward facing arrow at the bottom of the box to display the Format Cells dialog box.

In the window that comes up, make sure to select the **Number** tab. You can then choose the “Category” of number in the left column, and the right side will allow you to set very specific options based on the category. There is also a field that will show you a sample of the format.

When you’re satisfied with the options, click **OK** to apply them to your active cells.



\*\*I prefer to just **Right Click** on that cell or highlighted tab and select Format. This gives me a *Format Dialog Box* with more options...or for more options, you can click the number dialog box launcher icon.

The categories you will probably use most are “Currency” (if you’re dealing with money), Date, and Text (for labels).

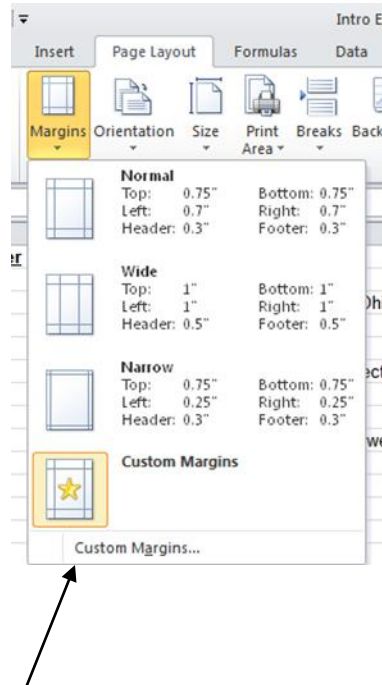
**Let's do this:**

Change the contents of your “date” column to be in format of August 3, 2007.  
Change the contents of the “Budgeted Amount” to have no decimal places (\$65 instead of \$65.00). Make sure the contents of the “Check Number” column are numbers with no decimal places.

**Page Margins, Headers and Footers**

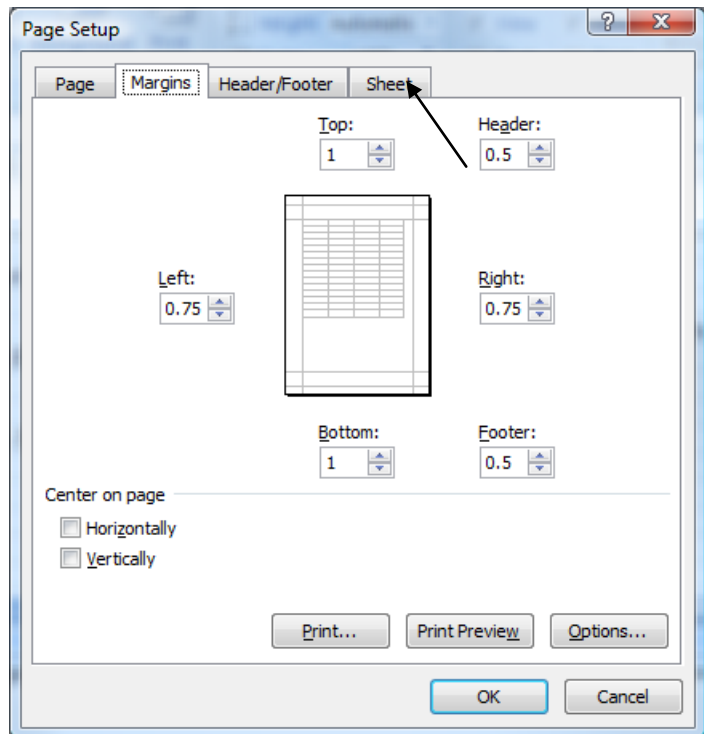
You can also control how your file will look when printed. There are quite a few options for the print layout, but we will just cover a few basics.

The page margins refer to how much white space remains above, below, and to either side of your information when it is printed onto paper. Excel uses smaller default margins than other programs such as Word: 1” top and bottom, .75” left and right. You can modify these to give yourself more room for handwritten notes (make the margins larger), or to fit more printed material on the page (make the margins smaller).



To change the margins, go to the **Page Layout** ribbon and choose **Margins**.

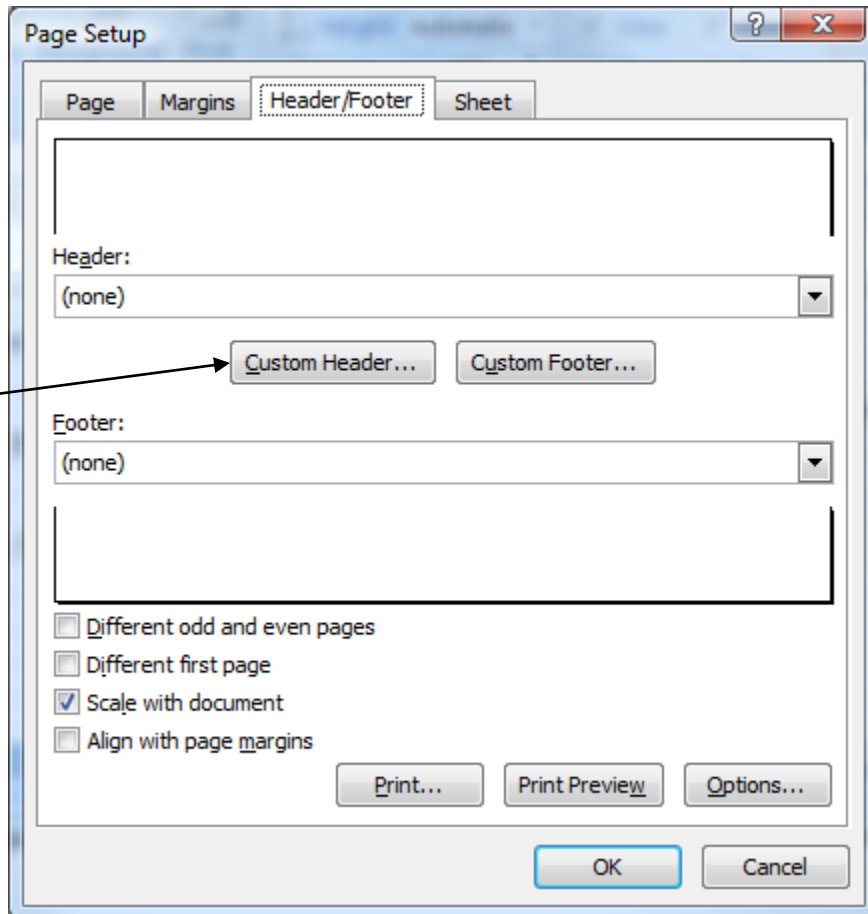
Click on the **Custom Margins** option, and make any adjustments necessary.



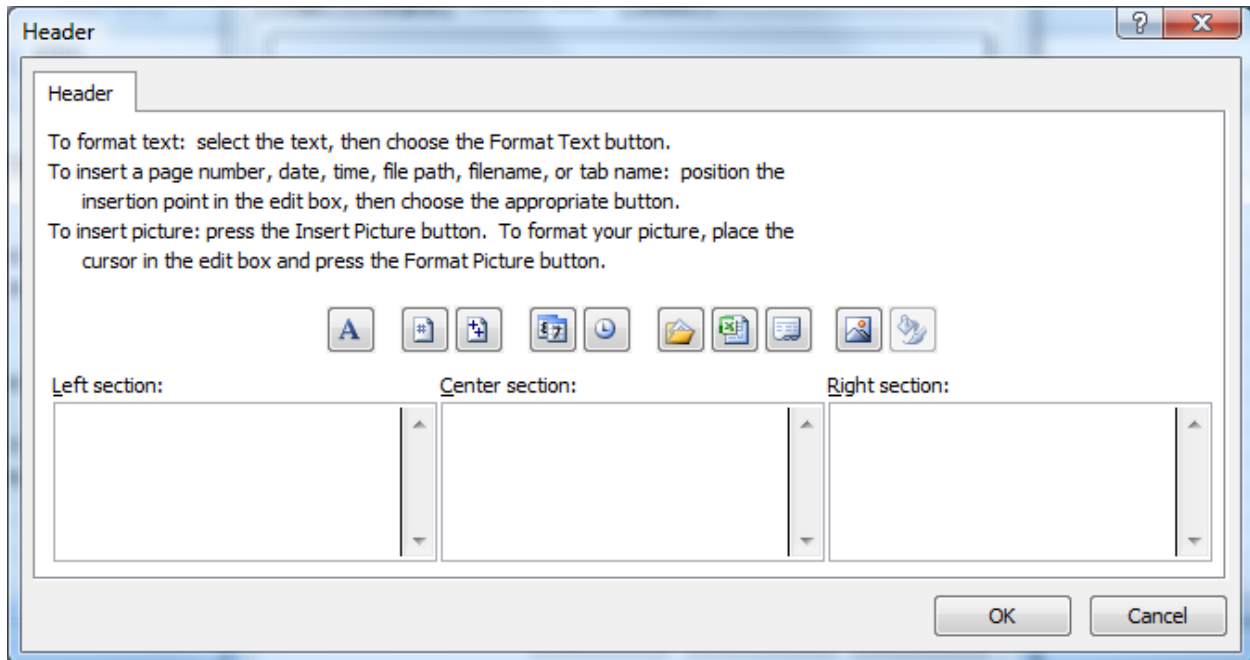
\*\*To print gridlines...you **Click** on the **Sheet** tab and select the **Gridlines** box.

The header of a document is information that prints above the normal spreadsheet, such as a title for the whole item. The footer, similarly, prints below the normal part of the page, and often contains information like the page number or a printed date.

In Excel, these are available by clicking **Page Layout** ribbon, then the **Page Setup More Options** arrow. Choose the **Header/Footer** tab. You can make use of pre-defined headers/footers by choosing from the drop down lists.



Alternatively, you can create your own unique header or footer, by clicking the “Custom Header” or “Custom Footer” button. Clicking that will give you the screen shown below; simply enter the information in the appropriate area and click **OK**. You can control the size of the font and where it falls (left, center, right), as well as inserting some special features (automatic page number, date stamping, etc).



- ❖ Add the standard header that prints the filename at the top of the page (Household expenses.xls)
- ❖ Create a custom footer that contains today's date in the left section, your name in the center section, and the page number in the right section.

One other change that you may find helpful for a spreadsheet with more columns than rows (meaning it's wider than it is tall) is the ability to have the paper print out "landscape". This is also under **Page Setup->Orientation**. Simply choose "Landscape" to change the paper orientation.

You can use the print preview feature to see what your header/footer will look like on the printed page. (**File > Print**). The preview will be revealed to the right, if you want to get out of this screen, just click on the Home tab.

### **Basic calculations**

The real power of Excel comes by way of formulas and functions. These allow you to do calculations, manipulations, and analysis of all those numbers you typed in. This is covered in greater depth in our "Intermediate Excel" class, but we'll cover a few basic ones to get you started.

### **What are formulas and functions?**

In Excel, a formula is an equation to perform some sort of calculation in your worksheet. It could contain any combination of numbers, cell references, mathematical operators, and functions. They always start with an equals sign (=) so that Excel knows to "do" the contents of the cell, rather than displaying them.

Sample formulas would include:

=7-5+9 (Subtracts 5 from 7, then adds 9 to the result. The cell would display 11)

=A2+B9 (Adds whatever number is in cell A2 to the number in cell B9 and displays the result)

A function is a prewritten formula that you can include in your sheet, simply putting in the appropriate values. You'll find that a lot of the calculations you'll want to do already have functions written that you make use of, and they are very helpful if making a lengthy calculation clearer. They generally take the form of the function name, followed by the values/references in parentheses.

Sample functions include:

=SUM(C7:C22) (Adds together all the values in every cell from C7 through C22 and displays it)

=AVERAGE(2,3,4,5,6) (Finds the average of 2, 3, 4, 5, 6 and displays it)

### Doing simple calculations

In their simplest form, you can use formulas and functions to do the same types of calculations that you might perform by hand or with a calculator. The advantage to doing them in Excel is that they'll be done quicker, you can save them to perform over and over on demand, and you they change automatically as you put in new numbers. We'll look first at basic math functions.

#### ***Basic math functions (add, subtract, multiply, divide)***

You can make use of the basic math "operands" to do addition, subtraction, multiplication, and division on the data in your spreadsheet. These don't require much special; just use the appropriate key on the keyboard:

Symbol	Function
+	Addition
-	Subtraction
*	Multiplication
/	Division

The actual cell where you put the formula will show the result of the calculation. The formula bar at the top will show the formula itself. If you wish to change a formula that you have already entered, click the formula bar and make your changes there.

On your spreadsheet, pick an open area and enter a few basic math calculations like those shown below. Remember to put the equals sign at the beginning.

=4+8+12 (will display 24)

=28/4.5 (will display 6.2222)

=999 \* 5 / 12 (will display 416.25)

In addition to using plain numbers, remember that you can use cell references. That will allow you to perform calculations on data you have already entered and have the formula update as you change the data.

- ❖ First, confirm that your value in E3 is \$144. Then, click in the blank cell (E20) enter the following formula: =E4\*2

What does it display?

- ❖ Next, change the value of E4 to be \$188. Now what does your formula return?

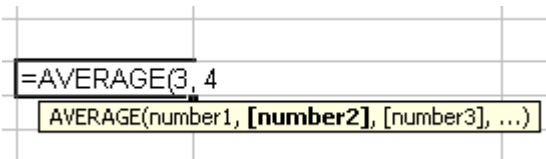
### Sum, averaging, min, max

The next level of formulas use is to take advantage of the built-in functions. The ones we will talk about today are SUM (adds up all the numbers), AVERAGE (finds the average of the numbers), MIN (finds the smallest number), and MAX (finds the largest number).

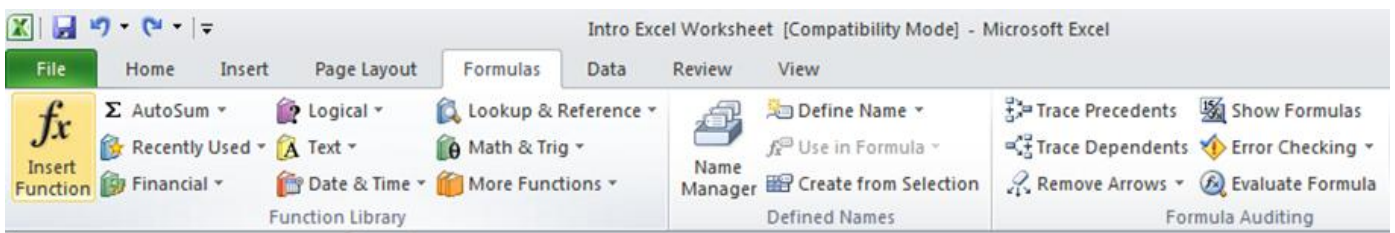
There are two ways to enter a function. The first is to type it in by hand like a formula.

Like the basic formulas, these will always start with an Equals sign. You then put the name of the function, followed by an opening parenthesis. Enter the numbers you want to perform the calculation on separated by commas, and then put the closing parenthesis.

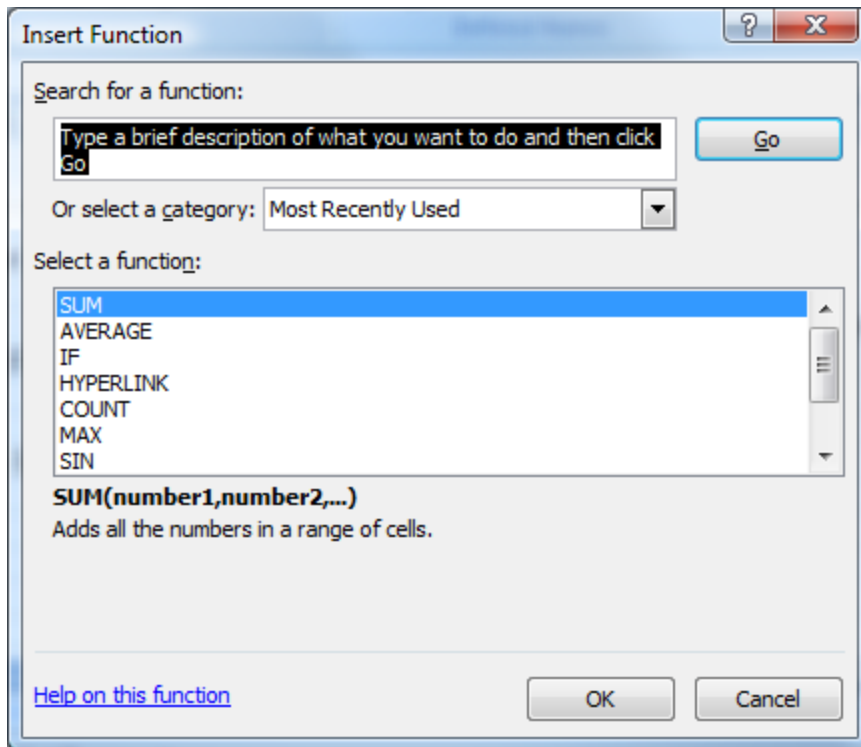
As you start to type, you will get a little yellow prompt box, reminding you of the proper format.



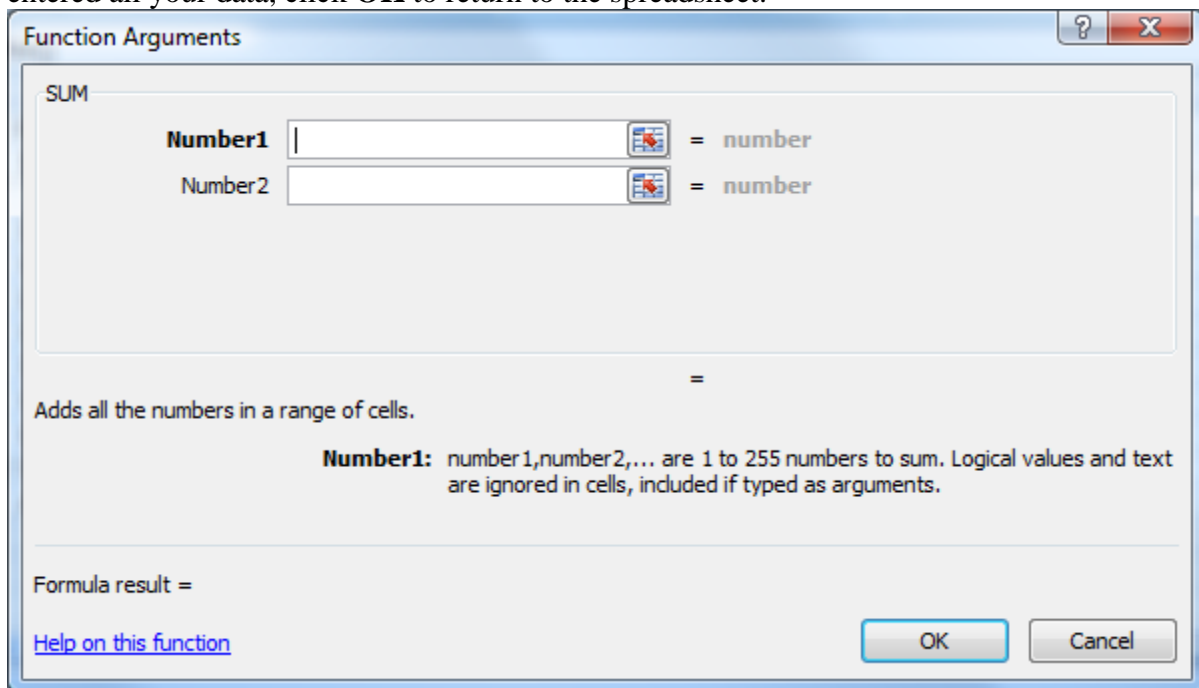
The second option is to make use of the Function Wizard. This is particularly useful if you can't remember the exact name of a function, or the proper format for putting information in. To start the wizard, click the **Formulas** ribbon and choose **Insert Function**.



A new window will come up, prompting you to choose the type of function you want to use. The ones you use most often will show up automatically. Otherwise, you can choose the category of functions ("All" will show you everything that is available) to get a more complete listing. Highlight the function you wish to use and click **OK**.



Excel will then give you a window where you can type the numbers, range of numbers, cells, etc, to perform the calculation on. It will also show you the formula result as you enter each new piece of data. (The precise layout of this screen may vary for different functions). When you've entered all your data, click **OK** to return to the spreadsheet.



Practice a few functions, using both the method of hand entry and the wizard. Which one do you prefer? Some sample functions to try:

Find the average of 2, 3, 4, 5, 6. (Function: AVERAGE)

Find the largest number in the values: 37, 99, 256 (Function name: MAX)

Find the smallest number in the values: 37, 99, 256 (Function name: MIN)

Just like basic formulas, you can also use cell references instead of having to type in numbers, and the function will update as the values in the cells change.

When you use cell references, there is one other neat feature to save you some time. If you are applying a formula or function to a range of adjacent cells, you don't have to type each cell reference individually. You can instead enter the first and last cell references, separated by a colon. So, if you wanted to apply the function to everything in cells A2 through A12, you would write it as A2:A12, instead of A2, A3, A4, A5, A6, A7, A8, A9, A10, A11, A12.

In cell A25, enter the formula to automatically add up everything in column A, rows 3 through 17. (Function: SUM)

Excel is also smart enough to copy formulas from one cell to another and update the cell references to reflect the new location.

Click into A25 and copy the formula there (**Home-Copy**, or **Ctrl+C** on the keyboard). Now paste that formula into E25 (**Home-Paste** or **Ctrl+V** on the keyboard). Look at the formula bar while in cell E25 – the cell references have all changed appropriately!

Now we're going to show you why using cell references is so wonderfully powerful, and put together several different things we've learned.

First, delete all the practice formulas and functions you have added to your spreadsheet. Then, in cell E25, write the function to automatically add up everything from E4 through E24. Copy that function over to F25. This will give you totals of all your "household expenses" in their actual cost (column E), and their budgeted amount (column F).

Now, in cell G25, write the function to show the difference between what you expected to spend and actually spent. (Hint: use subtraction) Use cell references to write the function.

Enter two new expenses in rows 19 and 20. Use the autofill to complete the next check numbers and dates. Use any category for the expenses you'd like, and make up the payee, amounts, and budgeted amounts (make the actual and budgeted amounts different, though).

Watch what happens to the totals in E25 and F25, and the difference in G25.

## In Conclusion

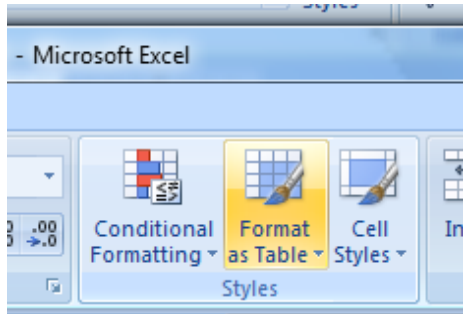
At this point, you should be able to make use of Microsoft Excel to create and move around in a spreadsheet, make it look how you would like on screen and in print, make changes to the data you've entered, and automate simple calculations. \*\*There are many spreadsheet templates that you can access from the Office Button...and by selecting: *New* to reveal a variety of excel templates that you can download from Microsoft's website!

### *Other things to practice on your own!*

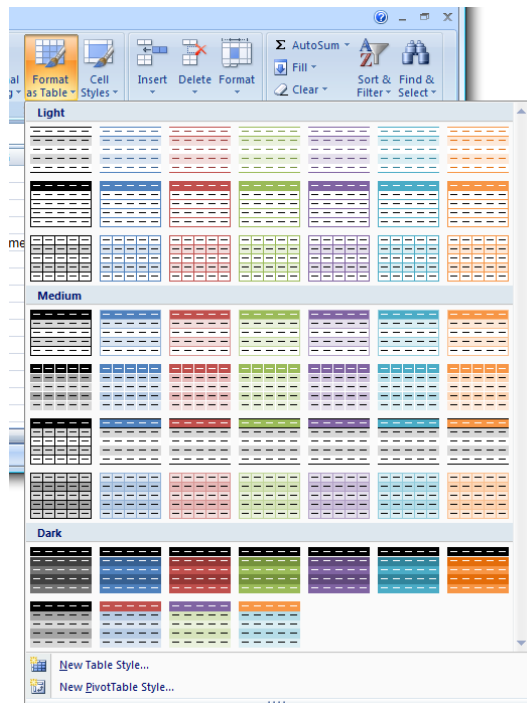
#### **Styles (Formerly AutoFormat)**

There are also a number of pre-defined styles in Excel that you can apply. While you can use them on a small section of a spreadsheet, they are designed for large sections or the whole sheet (as you'll see shortly). These may contain background colors, text changes, etc.

To use a Style, first select the area you wish to format. Under the **Home** ribbon, choose **Format as Table**



A window will appear, showing you the various types of pre-defined formats you could use.



Choose the format you wish to use.

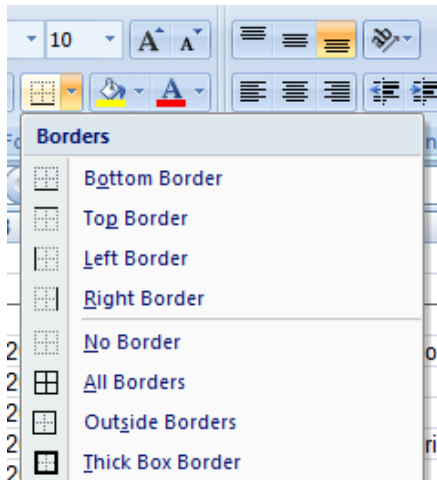
For practice, select your entire spreadsheet, and apply a sample Style. Notice that it wipes out the formatting you've done by hand. If you like the Style better, leave it in place. Otherwise, undo it by using the "Undo" command at the top of the page.

## Borders and Shading

Excel allows you to emphasize the grid-like nature of a spreadsheet by adding borders to individual cells or groups of cells. These borders can be plain or fancy, with a number of different options.

As always, begin by selecting the cells to which you want to apply the formatting.

For very basic borders, choose the downward arrow on the **Borders** icon in the **Home** Ribbon, and click on the style of formatting you wish to apply.



You can see additional border options, including alternate line styles and colors, by going to the **Home** ribbon, choosing the Borders Drop-Down box, and then going to the **More Borders** option.

Add some borders to your spreadsheet that help make it clearer to you. If you don't like a border that you add, remember you can always make use of the "Undo" function.

