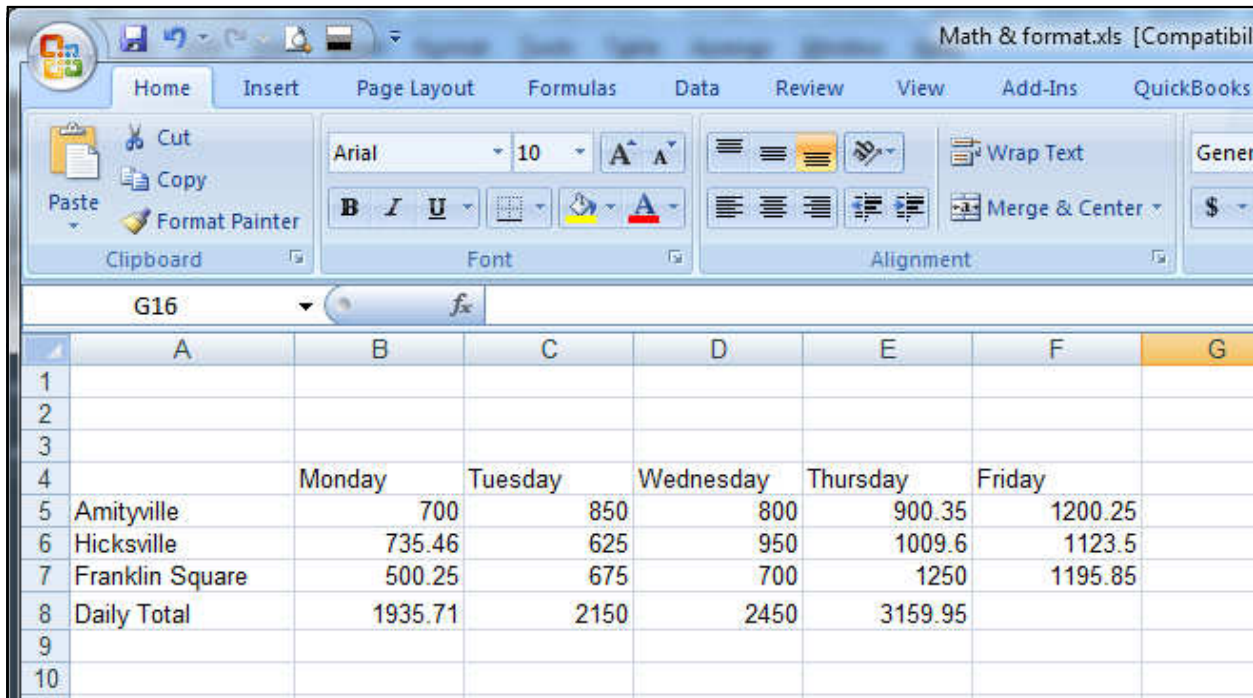# Microsoft Excel – Basic Skills

For the bulk of this course, we'll produce a spreadsheet to report the sales of three stores for a Long Island company. You can see the finished chart later on in this booklet. Let's start by typing in the numbers in the figure below.

	Monday	Tuesday	Wednesday	Thursday	Friday
Amityville	700	850	800	900.35	1200.25
Hicksville	735.46	625	950	1009.6	1123.5
Franklin Square	500.25	675	700	1250	1195.85
Daily Total	1935.71	2150	2450	3159.95	

Creating Formulas

Based on the example above, we want to create a formula that will add the store totals for Monday and place in the answer in Cell B8.

In a formula you must reference the cells that you want to perform the formula on by its cell address.

For Example:

1. First we need to click in cell B8.

2. Every formula must start with an equal sign (=) so we must type that in, then we must type the cell address in for each cell that we would like to add together.

3. The formula should look like this

     =B5+B6+B7

4. Press the *Enter key* and your result of 1935.71 should be shown in cell B8. If you select cell B8, yov'll see the formula you typed in the *Formula box*.

"Point & Shoot" method
You need not type in the entire formula on the keyboard. Alternatively, you can use your mouse to click on the cells used in your formula. Let's do Tuesday's total using this method:

1. Click on cell C8 and press the = key on the keyboard.

2. Now click on cell C5. Note how that cell reference is inserted into your formula.

3. Press the + key on the keyboard and then click on cell C6.

4. Repeat step 3 for cell C7.

5. Finish your formula by pressing the *Enter key*.

With either method, this formula could become quite cumbersome if we had a column of, say, 20 numbers or more! For adding columns of numbers, we could use the SUM function in EXCEL. A function is a short cut that we can use to accomplish the same thing as a formula with less typing involved.

The syntax for using the SUM function is as follows:

=SUM(first cell of range : last cell of range)

For example Instead of using the Formula
=B5+B6+B7

To get the total sales for Monday, we could type in
=SUM(B5:B7)

Where B5 is the first cell that we want to add and B7 is the last cell that we want to add.

Point & Shoot Method
Most people would have used the Point & Shoot method along with the Tool bar. Delete the formula you just typed and let's start over:

1. Click on cell B8

2. Press the Σ button on the *Tool bar* — this is the SUM function button

3. EXCEL functions are intelligent enough in that they "guess" at what you want to do. Here, you'll notice that a box of "marching ants" surrounds the range of cells EXCEL thinks you want to add. Just press the Enter key and you're done!

EXCEL has many functions like the SUM function available for your use. We'll explore a few later on in the course. The SUM function, however, is the only one with its own button on the *Tool bar*.

Totals for the rest of the columns
For the final step of this example, we will copy this formula to the rest of the day totals.

To Copy Formulas

1. Click in the cell where the original formula should be located.

2. Once the first formula is typed in and entered into the cell, click-and-hold on the box in the lower right hand corner of the cell and drag the mouse pointer to the cells where you would like the formulas copied.

3. Let go of the mouse button, and notice that your formula has been intelligently pasted in each column. I used the word "Intelligently," because if you examine the formula for Wednesday, for example, you'll see that the cell references changed from B5:B7 to D5:D7. Which is what it should be to correctly add the Wednesday numbers! We will discuss this topic further when we cover "Absolute Cell References" — that is holding the cell references steady during a copy process.

You can total the numbers across as well. The process is similar. Practice this by entering the total for each office and place them in the column to the right of Friday's numbers. You can call the heading of this column "Site Total."
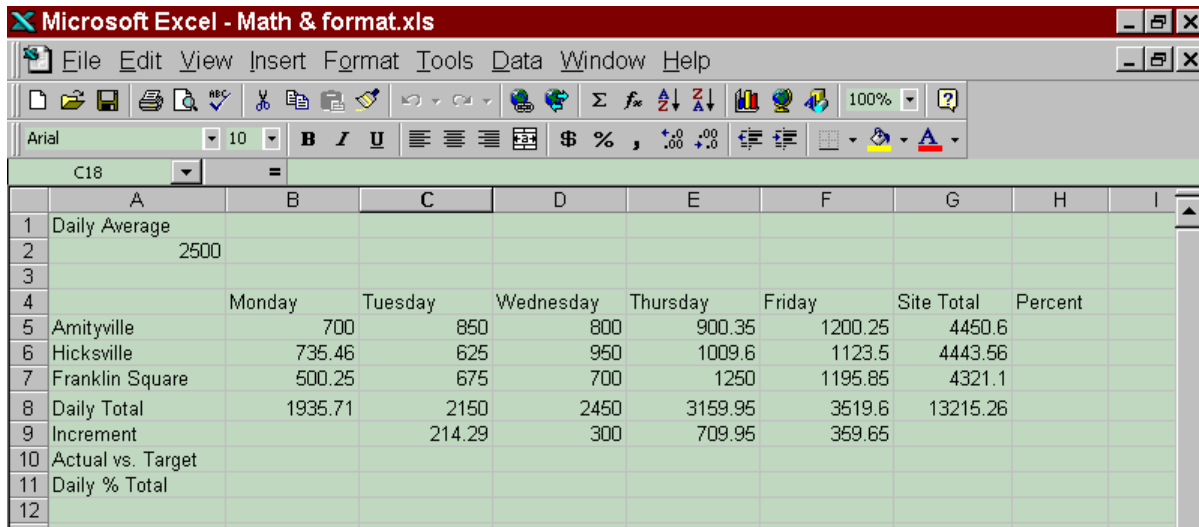
Absolute Cell References

As you've seen, when Excel copies formulas, it uses *relative cell addressing*. This means that as we copy a formula, Excel automatically changes the column and row labels. In our example, we want to track the change in sales from day-to-day. In the row below the *Daily Total*, label the row "Increment" as shown in the figure below. Then in cell C9, type the following formula:

$$=C8-B8$$

Now copy that formula to the right (using whatever method you're comfortable with) and examine the formulas.

	A	B	C	D	E	F	G	H	I
1	Daily Average								
2	2500								
3									
4		Monday	Tuesday	Wednesday	Thursday	Friday	Site Total	Percent	
5	Amityville	700	850	800	900.35	1200.25	4450.6		
6	Hicksville	735.46	625	950	1009.6	1123.5	4443.56		
7	Franklin Square	500.25	675	700	1250	1195.85	4321.1		
8	Daily Total	1935.71	2150	2450	3159.95	3519.6	13215.26		
9	Increment		214.29	300	709.95	359.65			
10	Actual vs. Target								
11	Daily % Total								
12									

You should see that cell D9=D8-C8; cell E9=E8-D8; etc. Notice that the row and column labels incremented. But, you may have a need in your a spreadsheet where this is not desired. For example, perhaps you have a tax rate in one cell that needs to be used in a formula for each line item. In order to do this, we must make the cell reference *absolute*.

Let's return to our example. The entire chain of stores has a daily target of $2,500 to which they measure their success. In the upper left corner of the sheet, enter the label "Daily Average" and below it the value 2,500 (as shown above. Row 10 of the figure above is where will place the formula that measures the daily success. As shown, label the row "Actual vs. Target." In cell B10, type the following formula:

$$=B8-A2$$

Now try copying this formula to the right...examine the formulas in each cell to see why they failed in all but cell B10. The formulas would have worked if the reference to A2 had stayed constant. We can instruct Excel to hold this reference steady by prefixing the column and row labels with a **$** as such:

$$=B8-\$A\$2$$

Type this formula into cell B10 and copy it to the right. Now your results should be perfect...check the formulas to see for yourself.

As a shortcut, we could have gone to the formula bar and clicked anywhere on the cell address we want to add the absolute reference tags to, and press the *F4* key on the keyboard. The **$** symbols will be added. If you press repeatedly, you'll see different forms of this occur: F4 —> $F$4 —> F$4 —> $F4. The last two cases are for more advanced uses and won't be covered here. I will say, that in a nutshell, the **$** holds only the label to it's immediate right steady during formula copying. You may want to experiment with this on your own and refer to the Excel manual or help files.

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Let's add in one more row of formulas before we format our spreadsheet. In row 11, we want to track the percent of that day's total vs. the weekly total. In cell B11, the formula would simply be: =B8/G8. Your answer should be some enormous decimal fraction. We'll format this soon. Copy the formula thorough cell F11. Now enter similar formulas in column H for the percentages of each store's sales vs. the weekly total.

One last topic before we format our work...mathematical operators. We have already used three of the four basic mathematical operators in our sheet: addition, subtraction and division. Below is the symbol to use for all four (including the one we left out: multiplication):

+	addition	=B5+B6+B7
-	subtraction	=B5-B4
*	multiplication	=B4*B5
/	division	=B8/G8

Parenthesis can be used for more complicated formulas. For example, the percent of the Amityville site total vs. the grand total for the week (cell H5) could be written as: =(B5+C5+D5+E5+F5)/(B8+C8+D8+E8+F8),

Spreadsheet Formatting – Method 1: Using the Tool Bar

1. **Cell Alignment** — buttons are provided on the Tool bar to center, left or right justify cell contents. In this example, we want to center the days of the week.

2. **Changing the Font** — in Excel, we have almost as much control over the font as we have in a word processing program such as Microsoft Word. We can format many cells at once. Select the fourth row in this example, and use the *Tool bar* buttons marked "**B**" and "U" to format the text as bold, underlined.

3. **Column Width** — By now, you should notice that the heading "Wednesday" is too wide for its cell. Rather than changing the width of that column alone, we want a uniform appearance across several columns. First select the five columns containing the days of the week and use what you learned for adjusting a column width to optimize the width for Wednesday. You will notice that all columns selected are now the same width.

4. **Number Formatting** — Many quick formatting tasks can be accomplished through the Tool bar.

   Currency — Formats numbers in the selected cells for decimal dollars $(1,234.56)

   Percent — Formats decimal numbers as percents: 0.12 ==> 12%

   Commas — Similar to the currency format button, but no dollar sign: (1,234.56)
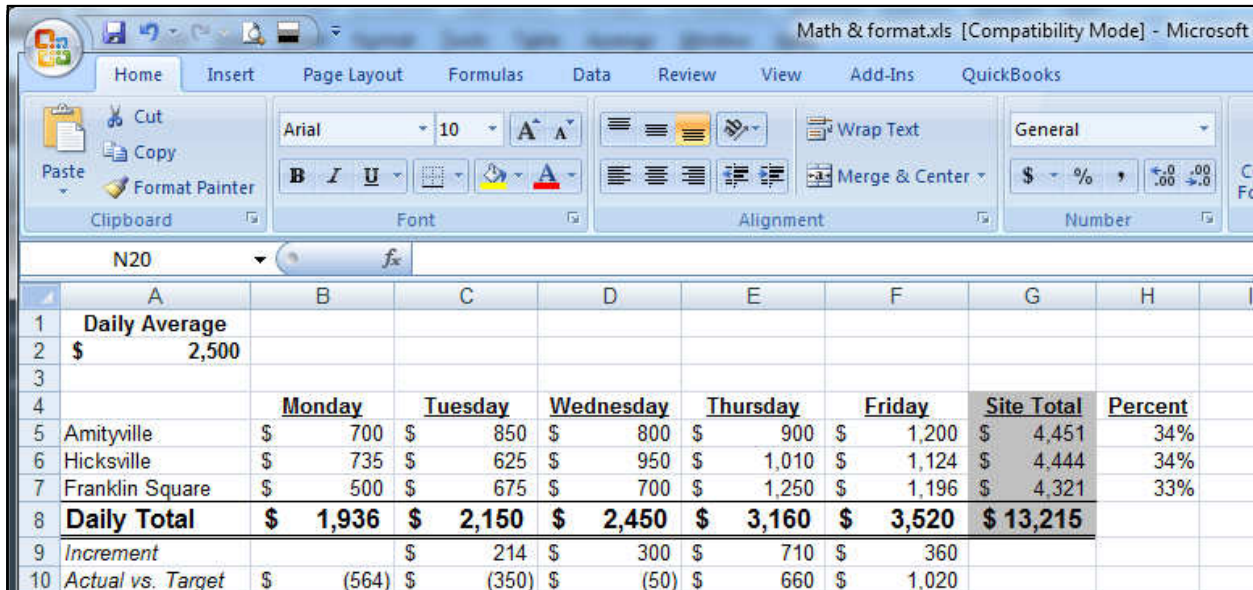
   Increase/Decrease Decimal — Notice that in the previous buttons, the number of decimal places are pre-determined for you. You can show more or less decimal places of the selected cell(s) by clicking on these buttons.

5. **Borders** —The reader of this chart should be drawn to important results contained in this chart. Therefore, we would want our Daily Total row to stand out. One of the things we will do is to place a border on the top and bottom of the cells. Select the seven cells from A8 through G8 and use the "borders "button on the *Tool bar* to select an appropriate set of borders.

6. **Shading** — The "Site Total" column is another important area we want our reader to focus on. Here, we'll use a different attention-grabbing method. Select the five cells from G5 through G8 and use the "Fill Color" button to select a background color for the cells.

7. **Font Coloring** — Similar to the shading function just discussed, we can change the color of the font itself. Select the Daily Average cells: A1 and A2. Use the Font Color button to change that color to red.

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Your Spreadsheet should now look something like the figure above. Are you proud of your work? Good...now let's clear all the formatting by selecting all the cells and choosing from the menu **Edit**—**Clear**—**Formats**. Try not to be too depressed, we're going to use another method to format our spreadsheet.


Spreadsheet Formatting – Method 2: Using the Format — Cells Menu

An alternate, and more powerful way to format your work is through the Format Cells command. First, as usual, select the cell(s) you wish to format and choose form the menu: **Format — Cells**. The window below will appear. The different types of formatting available are divided into six tabs: *Number, Alignment, Font, Border, Pattern* and *Protection*. All but the *Protection* tab is explained below (the concept of protecting a cell or sheet is an advanced topic and is not covered here).

Number — For each category on the left, various formatting controls are presented on the right. Shown at the right is the *Currency* settings. It allows you to control how many decimal places to display, the type of currency symbol to use (if you are working in foreign currencies), and the display handling of negatives. As you can see, you can format the display to show negative numbers in red (bringing back to life, the phrase, "in the red"). Even though most printers, in use in an office environment today, only print in black, it is still valuable to use a setting for red negatives; it makes visual validation of your work, on screen, easier.
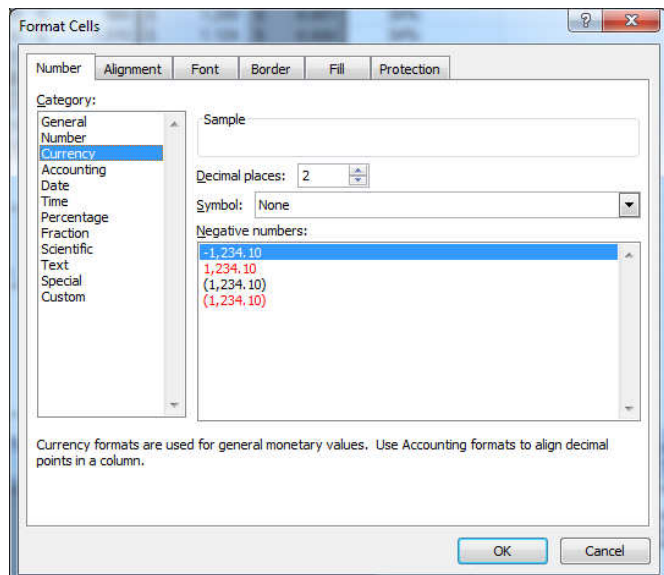
The other categories we will cover in this course are *Date* (later on) and *Percentage* (and perhaps *Special* or *Custom* — briefly). Feel free to experiment with the others

Alignment — The *Horizontal* setting is just like the alignment buttons on the *Tool* bar. But, if you've changed the height of your rows, you can adjust the *Vertical* alignment of your cell contents. Additionally, you have several controls to handle long entries in cells — usually good for text: column headings and notes.
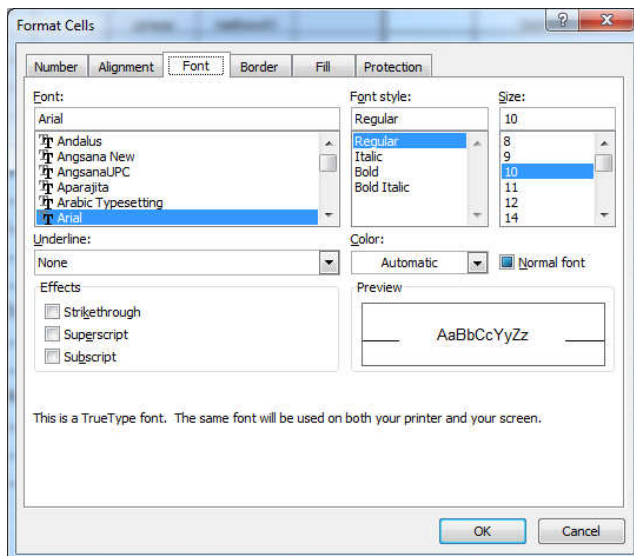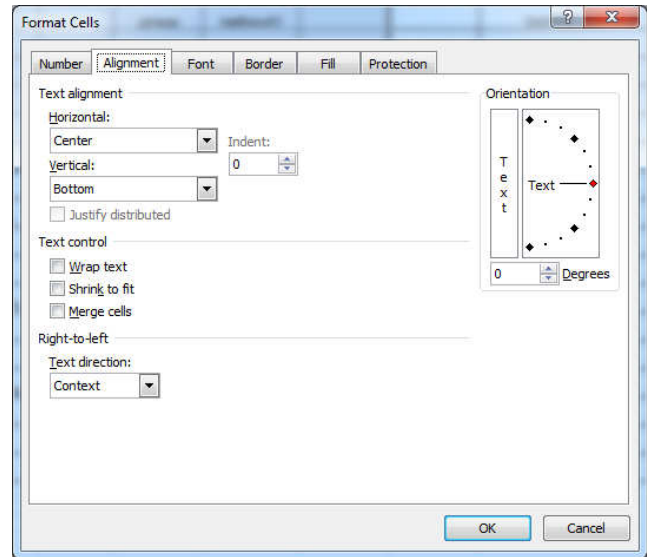
Font — Most of this is replicated on the *Tool* bar. Additional controls include a variety of underlines, and other effects.

Borders — As opposed to the *Tool* bar button for setting borders, you have many more variations available to you from this screen, including colors and line styles.
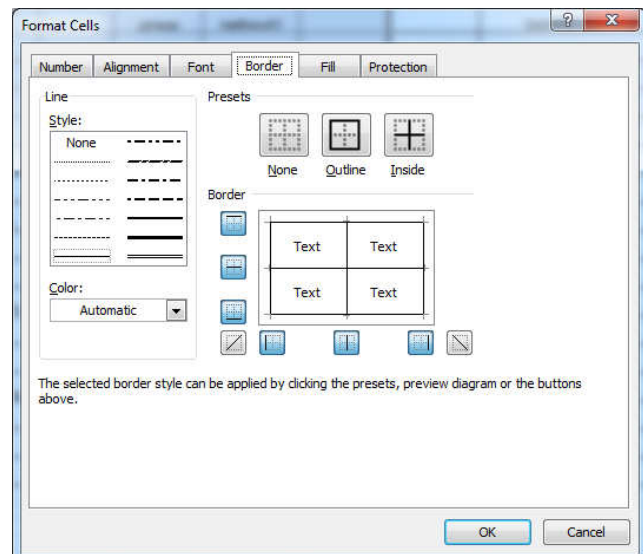
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Printing Basics

Print Preview
After you've create your masterpiece, you'll most likely want to print it. Before printing your work, it is a good idea to view it through **Print Preview**. You can access the Print Preview from the File menu or the corresponding *Tool bar* button.

Page Setup
Use the **Page Setup** to adjust the variables involved in printing. Here you can modify Margins, Orientation and add Headers and Footers. Different programs have different features on the their page setup screens. Some put these feature in different places on their Page Setup windows. For this conversation, we'll discuss only Margins and Orientation the two most common denominators usually found in all programs.

Page Setup is usually found on the **File** menu. The screens below are from Microsoft Word.

Page Tab

Orientation
Orientation refers to the layout of the paper. Normally we write and print our work on an 8-1/2 x 11 inch piece of paper in **Portrait** orientation. But if we rotate the paper 90 degrees, we call it **Landscape**.

Portrait

Landscape

Scaling
A feature not found in many programs is the scaling feature. This allows you shrink those wide spreadsheets (the 12-month variety) so they can fit on one piece of paper.

Margins

Margins are shown in inches. The four most common margins are Top, Bottom, Left and Right. This sets the boundaries of the printing from the edges of the paper.

NOTE: Before setting any margin to a very small value (such as 0.25"), check your printer documentation. Many printers have a region where they can't print to.

Another good effect to employ is to *Center* the spreadsheet on the page.
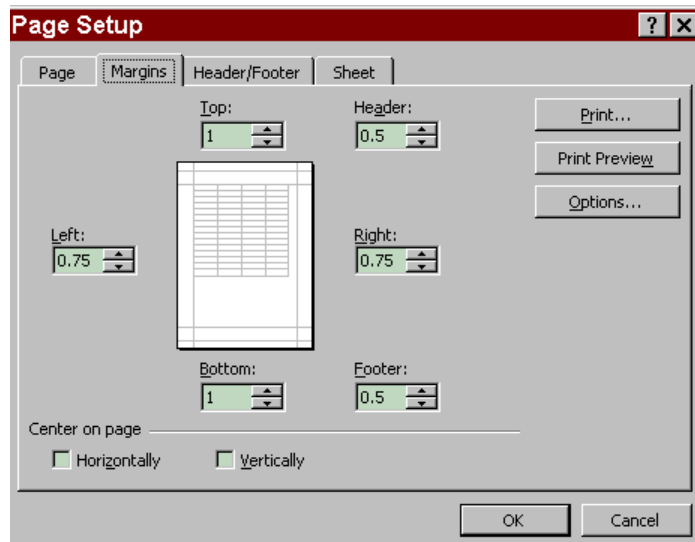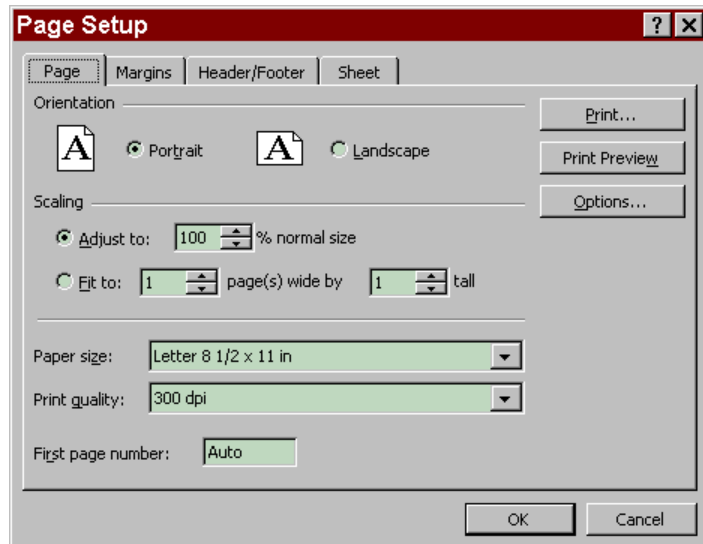
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Sheet Tab

Print area
You may have noticed that your print preview included some cells you didn't want, or excluded others you did want. The way to control what gets printed is to specify the print area. In our sheet, we may want to exclude that Daily Average information. To do so, we need to specify the range of cells to print as:

$A$4:$H$11

Print titles
If your spreadsheet is longer or wider than one sheet of paper, You may want the row containing the column headings to print at the top of each page. In the *Rows to repeat at the top* box, enter:

$5:$5

Repeat the process for any columns you want repeated in the *Columns to repeat at left* box.

The absolute cell references are a good idea in case you insert any rows or columns later on...your print areas won't shift.

In lieu of typing, you could click-and-drag to select the ranges needed.

Header/Footer Tab

If you're in a hurry, Excel offers a small assortment of headers and footers for you to choose from. Simply click on the drop-down arrows in each section and make your selection.

Creating a Custom Header or Footer

Alternatively, you can create your own customized Header and Footer.

Click on Custom Footer or Custom Header. The following dialog box will appear. The Header/Footer section is divided into thirds. Based on where you want the components of your Header/Footer to appear, click with the mouse in one of the selections.

There are several tools that we can use to create our Header/Footer. These tools are labeled in the figure to the right.