

Spreadsheet Concepts Using Microsoft Excel

Objectives:

Upon successful completion of Lab 5, you will be able to

- Create and edit a simple spreadsheet document
- Describe the advantage of using formulas rather than entering values only
- Use copy, cut, and paste to copy and move data including formulas
- Use the built-in function sum
- View formulas
- Format data in cells including font, bold, underline, italic, and shading
- Print a spreadsheet and adjust the fit

Resources required:

- A computer running Excel 2007

Starter files:

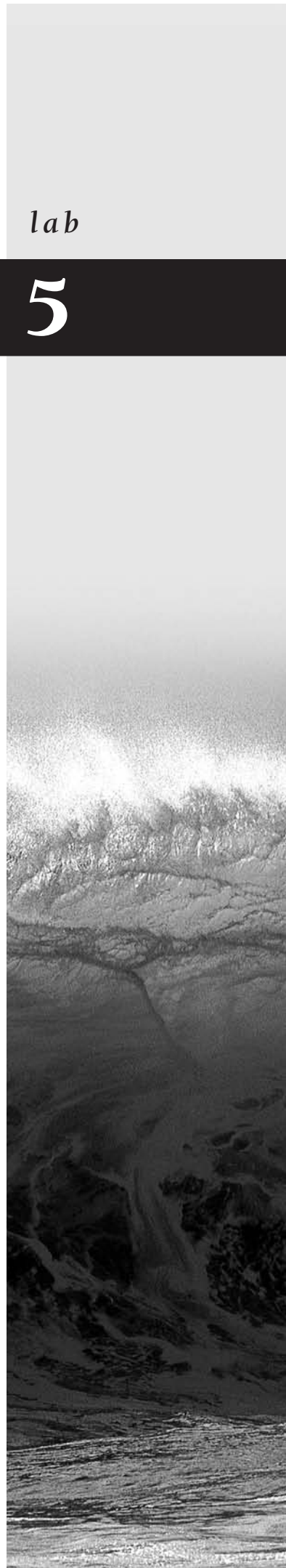
- None

Prerequisite skills:

- General keyboarding skills; familiarity with editing keys such as Delete, Backspace, Shift, Caps Lock, and Arrow keys
- Ability to find files using Windows Explorer or Windows search feature
- Ability to open and save a file in a Windows application

NRC's Top Ten Skills, Concepts, and Capabilities:

- Skills
 - Use a spreadsheet to model a simple process
 - Data entry
 - Formulas using relative cell references
 - Formatting
 - Printing
 - Simple built-in functions (average, sum)
- Concepts
 - Modeling and abstraction
- Capabilities
 - Engage in sustained reasoning
 - Think abstractly about Information Technology—building generic electronic spreadsheet concepts



Lab Lesson

If you've ever had to manage a household budget, track your investments, or even manage a volunteer fundraiser, then you will see the advantages offered by an electronic spreadsheet program. A spreadsheet program can also be used for tasks that are not financial. It can be used to organize any kind of list, such as listing names and phone numbers, tracking a sports team's statistics, or managing the volunteer schedule at a nursery school. Information that would be organized into rows and columns can be managed easily using a spreadsheet program. We will use the spreadsheet program Excel to create a household budget spreadsheet.

► Open Excel.

The Ribbon can be minimized to provide more room in the Excel window. Let's minimize the Ribbon and display it again. It may be minimized in your window by default.

► Right-click on the menu to display the short-cut menu as shown in Figure 5.1.

The menu is shown in Figure 5.2.

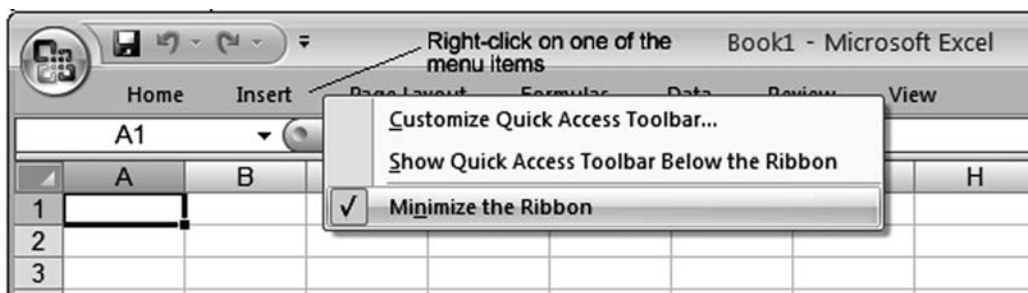


Figure 5.1 *Excel menu short-cut menu.*

- Click the menu item Minimize the Ribbon. If the Ribbon was visible before, it is now hidden. If the Ribbon was hidden, it is now visible.
- Ensure the Ribbon is visible, as shown in Figure 5.2. If it is hidden, use the above method to reveal it.

The Excel window contains a grid, toolbars, and sheet tabs as shown in Figure 5.2.

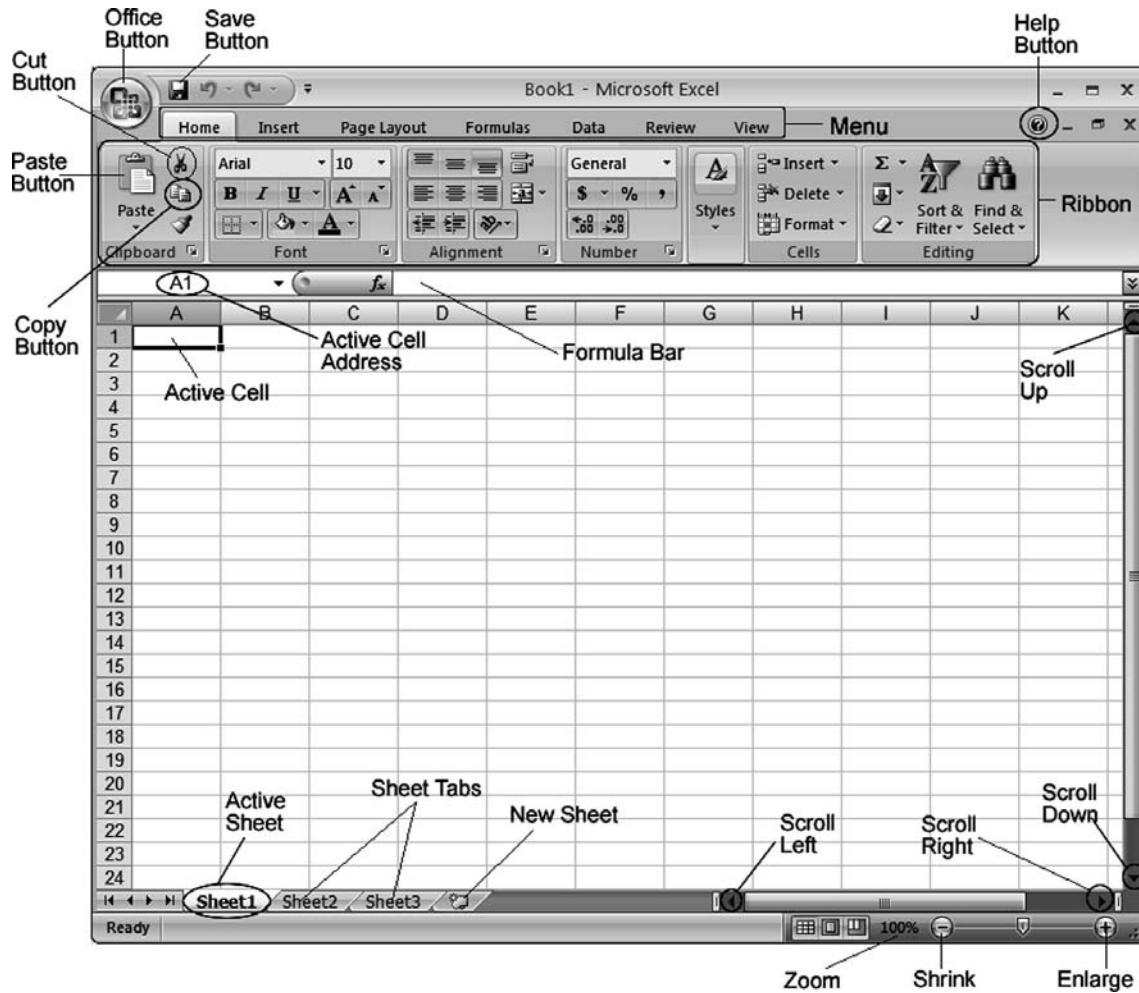


Figure 5.2 *The Excel window.*

The available worksheet area is quite large. The rectangular areas are called **cells**. There are 1,048,576 rows and 16,384 columns of cells available in each sheet. We will use only part of one sheet. Let's scroll to get a sense of the size of the work area.

- Click the left, right, up, and down scroll arrows on the right edge of the window as shown in Figure 5.2.

As you click the down scroll arrow you will notice the row numbers increasing. As you click the right scroll arrow, you will notice the column letters scrolling. After the alphabet has expired, the "counting" begins again AA, AB, AC, . . . until the last column, XFD.

- Press and hold the **Ctrl** key while you tap the **Home** key to return to cell A1.

Moving around the Worksheet

- Move the mouse pointer to cell D5.
- Click the **left mouse** button.

Notice that the cell is now outlined in bold. Only one cell will be outlined in bold. This indicates the active cell. You have activated cell D5 by clicking it.

The sheet tabs at the bottom of the window indicate different worksheets of the Excel workbook. Each of these sheets also contains 1,048,576 rows and 16,384 columns of cells. To activate a different sheet, click the appropriate tab.

- Click the tab labeled Sheet2.

Now you have activated the Sheet2 worksheet.

- Click the Sheet1 tab to activate Sheet1 again.

Now, let's begin entering data. There are essentially three types of data: labels, values, and formulas. A label is text such as a title, the name of a month, or a street address. A value is a number and a formula is some kind of calculation.

Data Entry

- Activate cell A1.
- Type: Hello!

While you type this label, several things are happening on the screen. You may notice that the label seems to appear in two places simultaneously. It appears in cell A1 and it also appears on the formula bar. Some symbols have also appeared on the formula bar as shown in Figure 5.3.

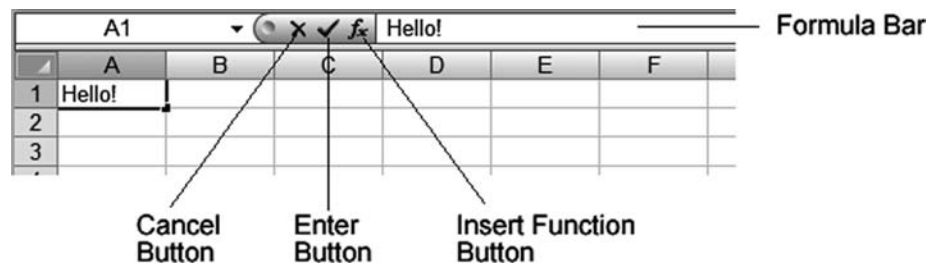


Figure 5.3 Excel formula bar.

- Click the **Cancel** button on the Formula Bar as shown in Figure 5.3.

Notice that the input “Hello!” has disappeared. You can cancel any input before it has been entered by clicking the **Cancel** button.

- Type: Hello!
- Click the **Enter** button on the Formula Bar as shown in Figure 5.3.

This button enters the data in the cell. Notice that the buttons on the Formula bar have disappeared. Similarly, you could have simply pressed the **Enter** key. The **Insert Function** button is used to select a formula; we will examine this later.

Let's assume the cell entry is incorrect and we wish to erase it from the cell.

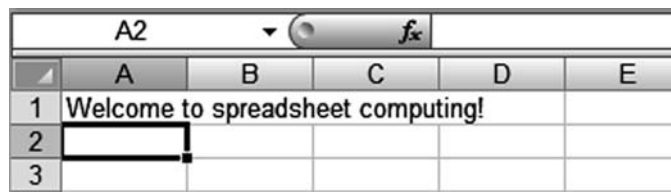
- Make sure that A1 is the active cell. If not, click cell A1 to activate it.

- Press the **Delete** key on the keyboard. Notice that the cell entry has been erased. There are other methods of deleting cell contents, but pressing the **Delete** key is quick and intuitive.

We can also make changes to the contents of a cell after it has been entered.

- Activate cell A1 if it is not already active.
- Type: Welcome to spreadsheet computing!
- Press the **Enter** key on the keyboard.

The text should be entered into the cell as shown in Figure 5.4.



	A	B	C	D	E
1	Welcome to spreadsheet computing!				
2					
3					

Figure 5.4 Excel text entered.

You should notice a few things. First, since this label is longer than the width of the column, it scrolls onto adjacent blank cells. Column widths can be enlarged to accommodate data so cells B1, C1, and D1 could still contain data later and column A could be enlarged. Second, after pressing the **Enter** key, the active cell is now A2. After data is entered, the new active cell will usually be the cell below the entry.

Let's edit the contents of cell A1.

- Double-click cell A1. Notice that the flashing insertion point appears in cell A1. You can edit the contents of a cell directly in the cell or in the Formula Bar. Let's replace the words "spreadsheet computing" with "Microsoft Excel."
- Use your editing skills to delete the words "spreadsheet computing" and replace it with "Microsoft Excel."
- Press the **Enter** key or click the **Enter** button on the Formula Bar to complete the cell entry.

Entering values is as easy as entering labels.

- Activate cell A2.
- Type: 3,456.78
- Press the **Enter** key or click the **Enter** button on the Formula Bar.

Notice that the comma separator has been accepted and the value is right-aligned in the cell.

- Activate cell A3 if it is not already active.
- Type: 123.456
- Press the **Enter** key or click the **Enter** button on the Formula Bar.

Notice that the value has been entered in the cell. Notice also that the decimal places are different and not aligned. We will see later how formatting the cells can improve this situation.

Entering a Formula

The power of the spreadsheet application is the ability to perform calculations using formulas. Let's create a formula that adds the contents of cells A2 and A3.

- Activate cell A4 if it is not already active.
- Type: =A2+A3

Notice that the formula appears in the cell and in the Formula Bar as shown in Figure 5.5. Also, the cells are color coded corresponding to the formula in cell A4.

DCOUNT		X ✓ <i>fx</i>		=A2+A3	
	A	B	C	D	E
1	Welcome to Microsoft Excel!				
2	3,456.78				
3	123.456				
4	=A2+A3				
5					
6					

Figure 5.5 Excel entering a formula.

- Press the **Enter** key or click the **Enter** button on the Formula Bar.
- Activate cell A4.

Notice that the formula appears in the Formula Bar, but the result of the formula appears in cell A5, as shown in Figure 5.6.

A4		<i>fx</i>		=A2+A3	
	A	B	C	D	E
1	Welcome to Microsoft Excel!				
2	3,456.78				
3	123.456				
4	3,580.24				
5					
6					

Figure 5.6 Excel formula results.

The power of a formula is in the cell references. Because the cell references are used in the formula, Excel updates the results when contents of these cells change.

- Activate cell A3.
- Type: 1,000
- Press the **Enter** key or click the **Enter** button on the Formula Bar.

Notice that the results in cell A4 have now changed to reflect the new data. Excel formulas always begin with an equals = sign. In our example, =A2+A3, the plus sign is called an **operator**. Excel formulas can contain the following operators:

Operator	Description
^	(Caret symbol) Exponentiation
*	(Asterisk symbol) Multiplication
/	(Slash symbol) Division
+	(Plus sign) Addition
–	(Dash or minus sign) Subtraction

When we create a more complicated formula, we can use these operators and we can also use the parentheses (). Excel will follow the order of operations for mathematics when calculating formulas.

Let's start by entering some of the data into specific cells, as shown in Figure 5.7.

- Delete the contents of cells A1, A2, A3, and A4. You can select each cell and press the **Delete** key to delete the contents.
- Enter the data shown in Figure 5.7.

Don't be concerned if some of the data appears to be "cut off" when you enter information in adjacent cells. We'll deal with column widths later. When you have completed entering all of the data, your spreadsheet should look something like that shown in Figure 5.8.

	A	B	C	D	E	F	G	H
1	Budget for Jane Doe							
2								
3		January	February	March	April	Year-to-Date		
4	Income	2578						
5								
6	Expenses							
7	Rent	950						
8	Car (gas)	120						
9	Car (insurance)				336			
10	Car (loan)	294						
11	Car (repairs)		628					
12	Food/household	600						
13	Miscellaneous	325	170	228	294			
14								
15	Total Expenses							
16								
17	Net Surplus/Deficit							
18								
19								

Figure 5.7 Excel sample data showing all cell content.

	A	B	C	D	E	F	G	H
1	Budget for Jane Doe							
2								
3		January	February	March	April	Year-to-Date		
4	Income	2578						
5								
6	Expenses							
7	Rent	950						
8	Car (gas)	120						
9	Car (insurance)				336			
10	Car (loan)	294						
11	Car (repairs)		628					
12	Food/hous	600						
13	Miscellane	325	170	228	294			
14								
15	Total Expenses							
16								
17	Net Surplus/Deficit							
18								
19								

Figure 5.8 Excel sample data displays normal; some of the cell data appears cut off.

Let's take the opportunity now to save the file.

- Click the **Save** button and save the file as Sample.xlsx.

Save the file periodically as you work through this exercise.

- Activate cell A1 by using the **Ctrl-Home** combination.

Changing the Column Width

Some of the titles in column A have been cut off because of information in cells in column B. This is not a problem since we can adjust the width of any column. Let's adjust the width of column A. The longest label in this column is "Net Surplus/Deficit." We'll adjust the width until the entire label is visible.

- Move the mouse pointer to the right border of the column A heading (the line between column A and B above cell A1) as shown in Figure 5.9. Notice that the pointer changes to a vertical line between a left and right arrow.

	A	↔	B
1	Budget for Jane Doe		
2			
3			January
4	Income		2,578

Figure 5.9 Excel sizing a column.

- Drag the border to the right until the longest label is visible.

Similarly, a column width can be decreased by dragging the line to the left. Using this method, any column width can be changed.

Moving Cell Contents

Cell contents can be easily copied or moved to other cells. Let's do some practicing!

- ▶ Activate cell B4. Let's move the income figure to cell C4.
- ▶ Move the pointer to the bottom edge of the active cell (any edge except the bottom right corner will do the trick).



You should see the pointer change from a cross icon to a large arrow with a move tool icon as shown in Figure 5.10. Earlier versions of Excel will show a large arrow without the smaller move tool icon.

	A	B	C
1	Budget for Jane Doe		
2			
3		January	February
4	Income	2,578	
5			
6	Expenses		

Figure 5.10 Excel mouse pointer for moving a cell.

- ▶ Drag the pointer to cell C4 until you see a “shadow” appear on cell C4. Release the **left mouse** button. It's that easy! The income figure has been moved to cell C4. In earlier versions of Excel, you may see an outline for the cell instead of a shadow.

Using this method, you can move the contents of any cell to any other cell in the worksheet. An alternate method is to activate the cell to be moved and use a cut and paste method. Let's use a different method to move the income figure back to cell B4.

- ▶ Activate cell C4.
- ▶ Click the **Cut** button  on the Ribbon as shown in Figure 5.2.
- ▶ Click cell B4.
- ▶ Click the **Paste** button  on the Ribbon as shown in Figure 5.2.

Copying Cell Contents

We can copy information from one cell to another as easily as we can move information from one cell to another. Let's copy the income figure in cell B4 to cells C4, D4, and E4.

- ▶ Activate cell B4.

Notice that the active cell is highlighted in bold and contains a box at the bottom right corner of the cell. This is called the **fill handle**.

- ▶ Move the mouse pointer to the fill handle. The pointer should change to a thin cross as shown in Figure 5.11.

	A	B	C
1	Budget for Jane Doe		
2			
3		January	February
4	Income	2,578	
5			

Figure 5.11 Excel mouse pointer on the fill handle of an active cell.

- Drag the pointer to cell E4 and release the **left mouse** button.

Notice the dotted outline on the cells as you drag the mouse pointer, as shown in Figure 5.12.

	A	B	C	D	E	F	G
1	Budget for Jane Doe						
2							
3		January	February	March	April	Year-to-Date	
4	Income	2,578					
5					2,578		
6	Expenses						

Figure 5.12 Excel mouse pointer dragging the fill handle.

You should notice that cells C4, D4, and E4 have been filled with the income figure! We can also use the copy and paste method to copy cell contents.


- Activate cell B7.
- Click the **Copy** button  on the Ribbon as shown in Figure 5.2.

Notice that there is a flashing marquee around cell B7.

- Position the mouse pointer in the middle of cell C7 and drag it to cell E7 to select these cells. Release the **left mouse** button, as shown in Figure 5.13.

	A	B	C	D	E	F	G
1	Budget for Jane Doe						
2							
3		January	February	March	April	Year-to-Date	
4	Income	2,578	2,578	2,578	2,578		
5							
6	Expenses						
7	Rent	950					
8	Car (gas)	120					

Figure 5.13 Excel cells selected.

- Click the **Paste** button  on the Ribbon to paste a copy of the value from cell B7 into the selected cells.
- Copy the Car (gas) figure in cell B8 to cells C8, D8, and E8 using any method you prefer.
- Copy the Car (loan) figure in cell B10 to cells C10, D10, and E10 using any method you prefer.
- Copy the Food/household figure in cell B12 to cells C12, D12, and E12 using any method you prefer.


Your document should look something like that shown in Figure 5.14.

	A	B	C	D	E	F	G	H
1	Budget for Jane Doe							
2								
3		January	February	March	April	Year-to-Date		
4	Income	2578	2578	2578	2578			
5								
6	Expenses							
7	Rent	950	950	950	950			
8	Car (gas)	120	120	120	120			
9	Car (insurance)				336			
10	Car (loan)	294	294	294	294			
11	Car (repairs)		628					
12	Food/household	600	600	600	600			
13	Miscellaneous	325	170	228	294			
14								
15	Total Expenses							
16								
17	Net Surplus/Deficit							
18								

Figure 5.14 Excel cells containing budget figures.

Using the Undo and Redo Features


Now is a great time to introduce the Undo feature. This command will undo the effect of the most recent command.

- Click the **Undo** button  on the upper left corner of the Excel window.

Excel cannot undo all commands but it's ideal for commands such as editing, cut, copy, insert, delete, formatting and others. You can click the drop-down arrow on the **Undo** button to see the most recent tasks that can be "undone." Excel will allow you to click the **Undo** button repeatedly to progressively undo the most recent tasks, or you can choose from the list of tasks to undo a group of tasks. You will not be able to choose a single task in the middle of the list. When you select a task in the middle of the list, Excel will undo all of the tasks above the task selected.

Notice that the copied cells have been deleted.

Once the Undo feature has been used, the Redo feature can be used to "redo" the most recently undone task.

- Click the **Redo** button  at the upper left corner of the Excel window.

Notice that the copied cells have reappeared.

Entering Formulas

Most of the figures have been entered and it's time to enter the formulas. Let's start with the Total Expenses formula. We could enter a formula such as `=B7+B8+B9+B10+B11+B12+B13`, but this is long and cumbersome. When there is a group of cells to be included in a calculation that adds

all of the data, we can use the SUM function. This will allow us to specify a group of cells by dragging to select the cells or typing a specific range.

- Activate cell B15.
- Type: =SUM(

Do not type any spaces in this formula. Be sure to type the left parenthesis because it is part of the function.

Select the group of cells from B7 to B13 by dragging through them. Notice that there is a marquee around the block of cells as shown in Figure 5.15.

	A	B	C	D	E	F	G
1	Budget for Jane Doe						
2							
3		January	February	March	April	Year-to-Date	
4	Income	2,578	2,578	2,578	2,578		
5							
6	Expenses						
7	Rent	950	950	950	950		
8	Car (gas)	120	120	120	120		
9	Car (insurance)				336		
10	Car (loan)	294	294	294	294		
11	Car (repairs)		628				
12	Food/household	600	600	600	600		
13	Miscellaneous	325	170	228	294		
14							
15	Total Expenses	=sum(B7:B13					
16		SUM(number1, [number2], ...)					
17	Net Surplus/Deficit						
18							

Figure 5.15 Excel Sum function.

- Press the **Enter** key to complete the formula.
- Activate cell B15 to see the formula in the formula bar.

Notice that Excel has placed a right parenthesis at the end of the function to end it. The formula should be =SUM(B7:B13). The end cells are specified, separated by a colon (:) to define the range of cells. The result of the formula appears in cell B15 but the actual formula appears on the formula bar.

- Copy the formula in cell B15 to the range C15:E15. You can use the dragging method or the copy and paste method.
- Activate each cell (C15, D15, E15) and look at the formula in the formula bar. The formula in cell C15 is =SUM(C7:C13).

Excel has changed the range in each cell accordingly. This is exactly the effect that we need at this point, so don't hesitate to copy formulas.

Now let's enter the formula for the Net Surplus/Deficit using a pointing method. We will subtract the Total Expenses figure from the Income figure.

- Activate cell B17.
- Type: =
- Click cell B4.

Notice the marquee around cell B4.

- Type: -
- Click cell B15.

Notice the marquee around cell B15, as shown in Figure 5.16.

	A	B	C	D	E	F	G
1	Budget for Jane Doe						
2							
3		January	February	March	April	Year-to-Date	
4	Income	2,578	2,578	2,578	2,578		
5							
6	Expenses						
7	Rent	950	950	950	950		
8	Car (gas)	120	120	120	120		
9	Car (insurance)				336		
10	Car (loan)	294	294	294	294		
11	Car (repairs)		628				
12	Food/household	600	600	600	600		
13	Miscellaneous	325	170	228	294		
14							
15	Total Expenses	2289	2762	2192	2594		
16							
17	Net Surplus/Deficit	=B4-B15					

Figure 5.16 Excel entering a formula using the pointing method.

- Press the **Enter** key to complete the formula.

The formula could have been manually entered as =B4-B15, however the cells can also be selected with the mouse as we have done.

- Copy the formula in cell B17 to the range C17:E17 using any method you prefer.

Let's create the Year-To-Date formulas.

- Activate cell F4.
- Type: =SUM(
- Select the range B4:E4 by dragging through this range to select those cells as shown in Figure 5.17.

	A	B	C	D	E	F	G	H
1	Budget for Jane Doe							
2								
3		January	February	March	April	Year-to-Date		
4	Income	2 578	2 578	2 578	2 578	=SUM(B4:E4		
5						SUM(number1, [number2], ...)		
6	Expenses							
7	Rent	950	950	950	950			
8	Car (gas)	120	120	120	120			
9	Car (insurance)				336			
10	Car (loan)	294	294	294	294			
11	Car (repairs)		628					
12	Food/household	600	600	600	600			
13	Miscellaneous	325	170	228	294			
14								
15	Total Expenses	2289	2762	2192	2594			
16								
17	Net Surplus/Deficit	289	-184	386	-16			

Figure 5.17 Excel sum function across a row.

- Press the **Enter** key to enter the formula in the cell.
- Copy this formula to the appropriate places in column F. You can use the **Edit, Copy** command in this case since the cells are not all adjacent. You can also use the drag and drop technique, and delete contents of the cells that contain "0." Figures 5.18 and 5.19 show the budget document as it is displayed and with the formulas.

	A	B	C	D	E	F	G
1	Budget for Jane Doe						
2							
3		January	February	March	April	Year-to-Date	
4	Income	2578	2578	2578	2578	10312	
5							
6	Expenses						
7	Rent	950	950	950	950	3800	
8	Car (gas)	120	120	120	120	480	
9	Car (insurance)				336	336	
10	Car (loan)	294	294	294	294	1176	
11	Car (repairs)		628			628	
12	Food/household	600	600	600	600	2400	
13	Miscellaneous	325	170	228	294	1017	
14							
15	Total Expenses	2289	2762	2192	2594	9837	
16							
17	Net Surplus/Deficit	289	-184	386	-16	475	
18							
19							

Figure 5.18 Excel budget document with all values.

	A	B	C	D	E	F
1	Budget for Jane Doe					
2						
3		January	February	March	April	Year-to-Date
4	Income	2578	2578	2578	2578	=SUM(B4:E4)
5						
6	Expenses					
7	Rent	950	950	950	950	=SUM(B7:E7)
8	Car (gas)	120	120	120	120	=SUM(B8:E8)
9	Car (insurance)				336	=SUM(B9:E9)
10	Car (loan)	294	294	294	294	=SUM(B10:E10)
11	Car (repairs)		628			=SUM(B11:E11)
12	Food/household	600	600	600	600	=SUM(B12:E12)
13	Miscellaneous	325	170	228	294	=SUM(B13:E13)
14						
15	Total Expenses	=SUM(B7:B13)	=SUM(C7:C13)	=SUM(D7:D13)	=SUM(E7:E13)	=SUM(B15:E15)
16						
17	Net Surplus/Deficit	=B4-B15	=C4-C15	=D4-D15	=E4-E15	=SUM(B17:E17)
18						
19						

Figure 5.19 Excel budget document formulas.

Viewing Formulas

You can view the formulas as shown in Figure 5.19.

- Press and hold the **Ctrl** key while you tap the ~ key.

The ~ key is at the upper-left position on your keyboard. Notice that the display reveals all of the formulas, as shown in Figure 5.19. To return to the display view we will use the same key combination.

- Press and hold the **Ctrl** key while you tap the ~ key. Notice that the view has returned to the display view.

Inserting and Deleting Rows and Columns

Excel allows us to insert rows and columns of cells into the worksheet and adjusts the formulas accordingly. Let's insert a row between the month headings and the income figures.

- Activate cell B4. This is the position of the new blank row and activating any cell in the row will work.
- Click the drop-down arrow beside or below the Insert button on the Ribbon as shown in Figure 5.20. This reveals the Insert menu.
- Click the menu choice **Insert Sheet Rows** to add a row at the active cell position.

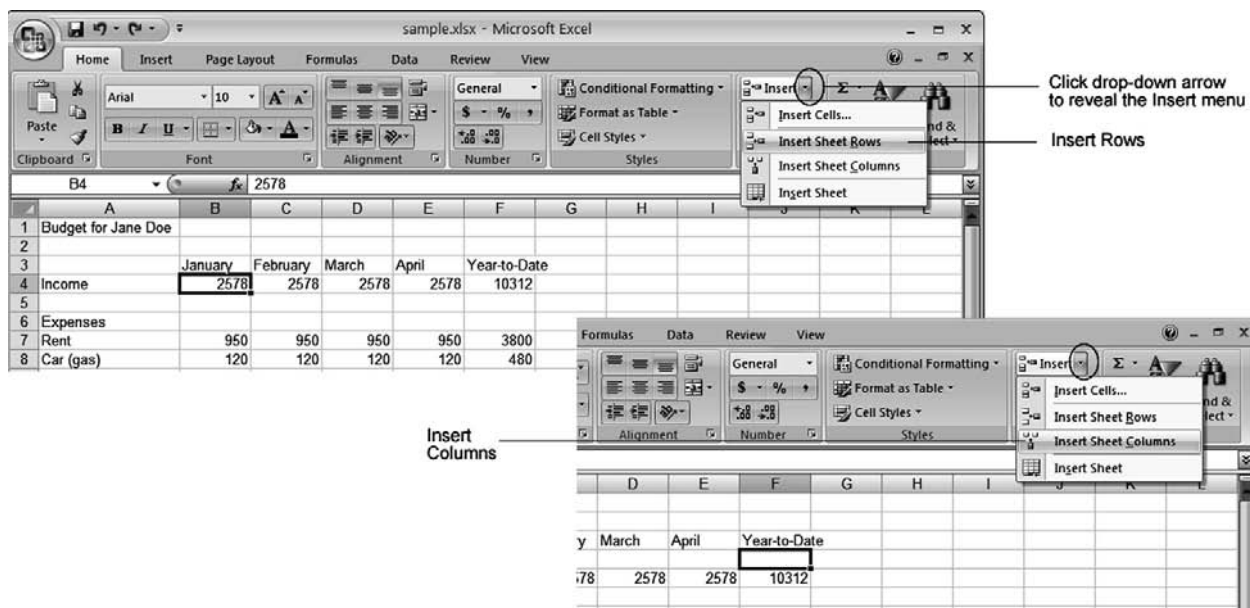


Figure 5.20 *Excel Insert Rows and Columns.*

Let's insert a column, and then delete it.

- ▶ Activate any cell in column F.
- ▶ Click the drop-down arrow beside the Insert button on the Ribbon as shown in Figure 5.20.
- ▶ Click the menu choice **Insert Sheet Columns** to add a column at the active cell position.

Notice that a blank column has been inserted at the active cell position and any cell references have been adjusted.

Now that we've inserted a column, perhaps we decide that it really isn't necessary and now we want to delete it.

- ▶ Activate any cell in column F.
- ▶ Click the drop-down arrow beside or below the Delete button on the Ribbon.
- ▶ Click the menu item **Delete Sheet Columns** to delete the column.

Printing a Worksheet

You can print an Excel worksheet using the **Office** button and **Print** menu command as you would with any other application program. Worksheets can quickly become wide and long and will print on multiple pages, or can be fit to a single page. When the document is fit to a single page, the font size is reduced until the data fits on one page.

- ▶ Click the **Office** button and click the **Print** menu item.
- ▶ Click the **Print** option as shown in Figure 5.21.

The **Print** dialog box should appear as shown in Figure 5.21.

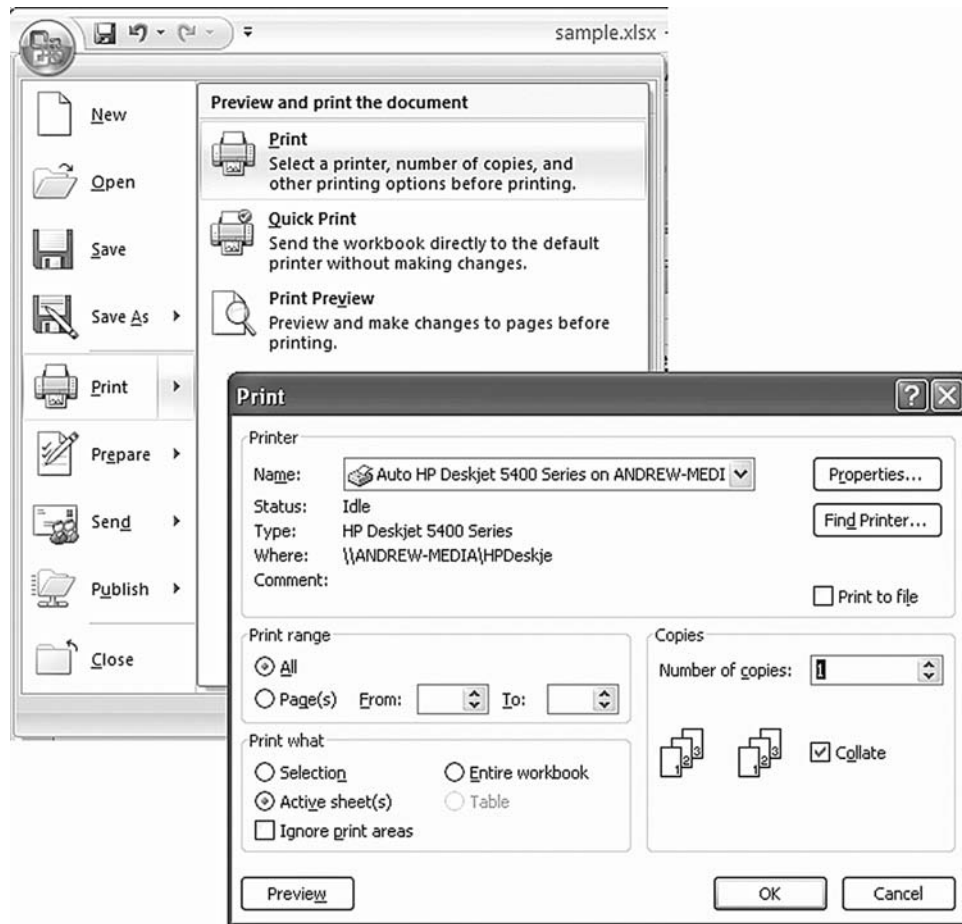


Figure 5.21 Excel Print dialog box.


Notice that the **Active sheet(s)** option is selected. As the workbook can have several sheets, there is an option to select only the active sheet, or the entire workbook.

- If you have a printer available, click the **OK** button to print the worksheet. If you do not have a printer available, click the **Cancel** button to cancel the print.

Changing Alignment in a Cell

To this point, we have been entering data, formulas, and adjusting the worksheet cells. Let's look at some formatting options to enhance the document.

By default, all of the labels are left-aligned within the cell and all of the values are right-aligned. Let's adjust the month labels so that they are centered in the cell.

- Select the cells containing the months by positioning the mouse pointer in the middle of cell B3 and dragging through to cell E3.
- Click the **Center** button  on the Ribbon as shown in Figure 5.22.

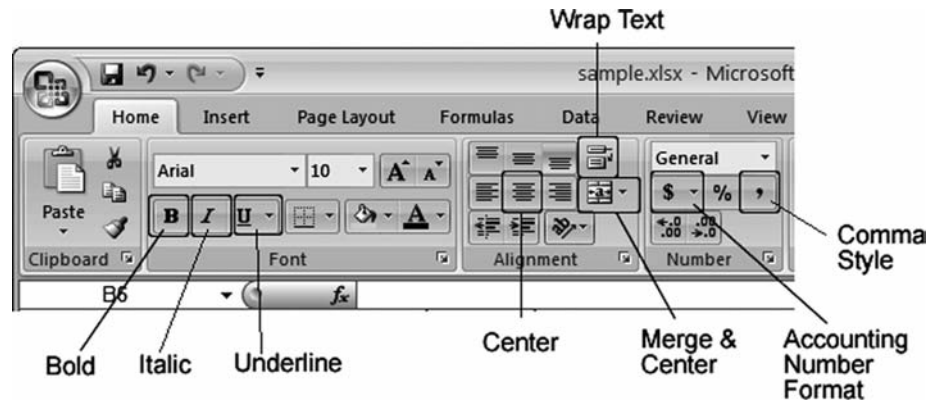


Figure 5.22 Excel Ribbon buttons.

Wrapping Text in a Cell


If the content of a cell is too long, we may prefer to wrap the text within the cell, rather than increase the column width. First, make sure that the title “Year-to-Date” is extending beyond column F and into column G. If column F is wide enough for the title, decrease the column width a bit.

- ▶ Activate cell F3.
- ▶ Click the **Wrap Text** button on the Ribbon as shown in Figure 5.22.

Notice that the Year-To-Date title is now wrapped within the cell. No new row has been added and the row height has been adjusted to accommodate the label.

Merge and Center

We can center a label across a group of columns easily.

- ▶ Activate cell A1. This cell contains the label “Budget for Jane Doe.” It’s important that the label to be centered is entered in the leftmost cell of the range.
- ▶ Select the range A1:F1 by dragging through the range.
- ▶ Click the **Merge & Center** button  on the Ribbon as shown in Figure 5.22.

Notice that the title has been centered across columns A through F. The cells A1:F1 have been merged. When you activate any of these cells the entire selection is activated, as shown in Figure 5.23.

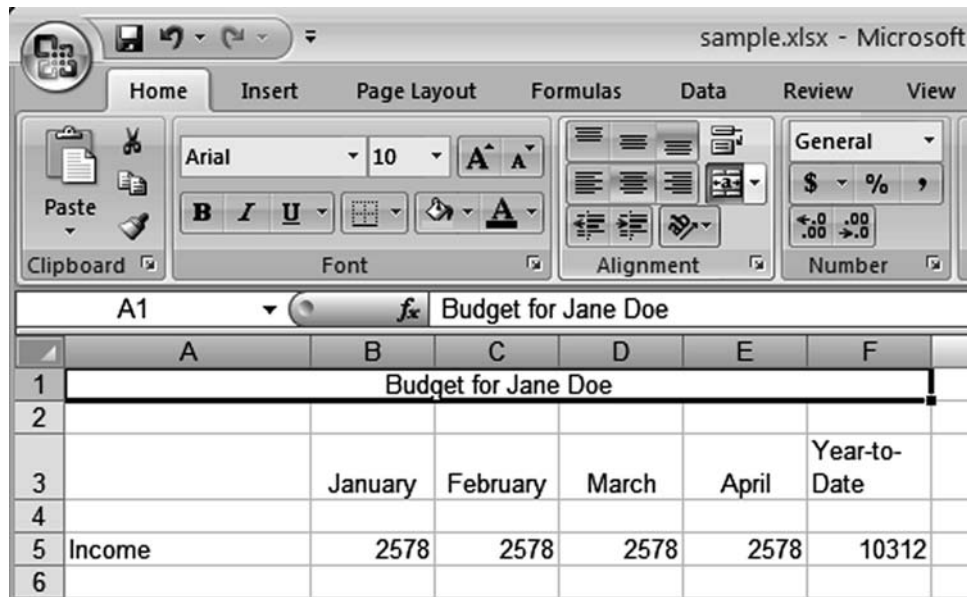



Figure 5.23 Excel Merge and Center title.

Formatting Values

The values in the worksheet do not contain decimals or dollar signs. We can use formatting options to include these.

- ▶ Select the range B5:F5 by dragging through the range.
- ▶ Click the drop-down arrow beside the Accounting Number Format button  on the Ribbon as shown in Figure 5.24.
- ▶ Click the menu item **\$English (U.S.)**.

Now look at the numbers in the worksheet. If numbers have disappeared and have been replaced with #, this indicates that the number of characters has exceeded the column width. If that occurs, it's necessary to increase the width of the columns. If there is more than one column affected, it may be easiest to increase the widths as a group.

Let's format some more values.

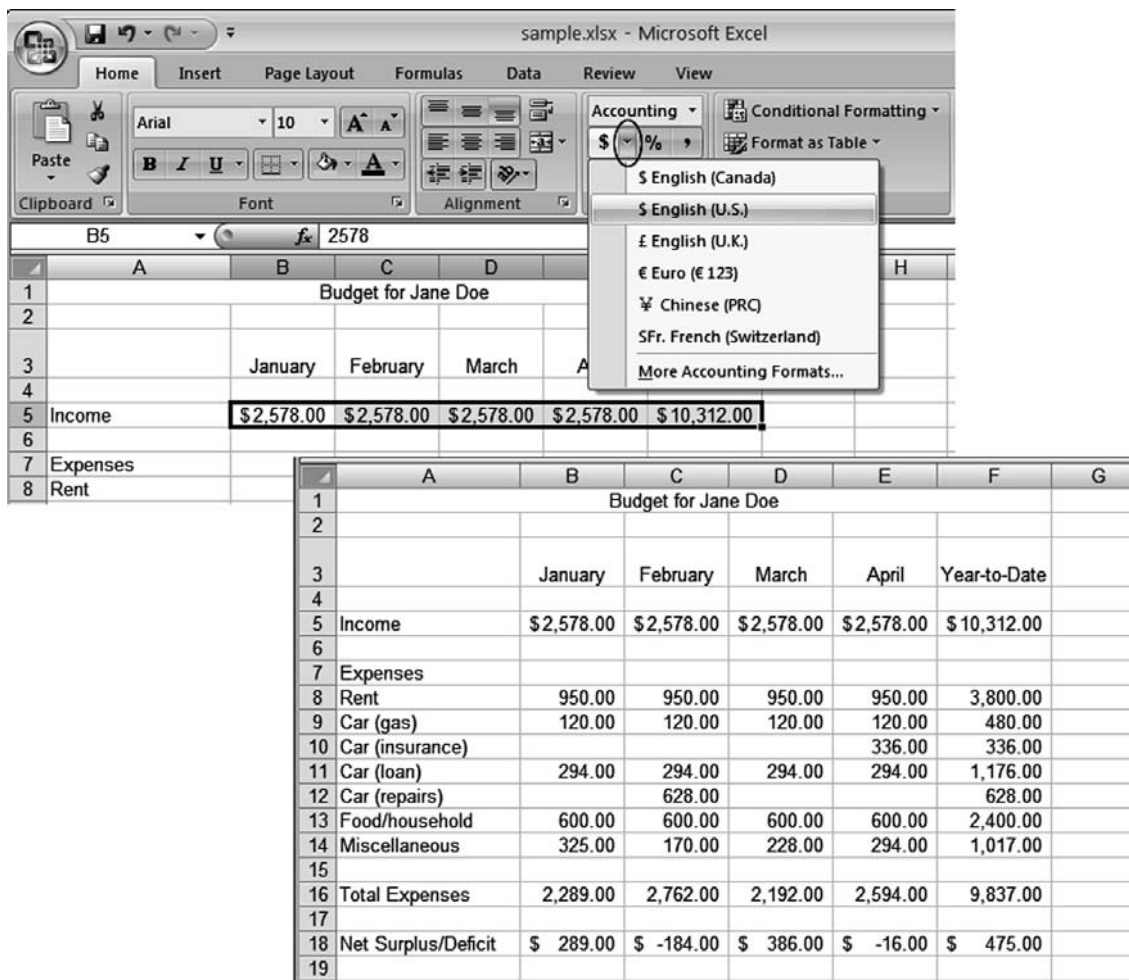





Figure 5.24 *Excel values formatted.*

- ▶ Select the range B18:F18 by dragging through the range.
- ▶ Click the **Accounting Number Format** button  on the Ribbon and select **\$English (U.S.)**.
- ▶ Select the range B8:F18 by dragging through the range. Start dragging at one of the corner positions and continue to the opposite corner to select all of the cells in the range.
- ▶ Click the , (comma) button  on the formatting toolbar.

Notice that all of the numbers greater than three digits now have comma separators and all of the numbers have two decimal places, as shown in Figure 5.24.

Bold, Underline, Italic, and Font Changes

Let's display all titles in bold so that they stand out.

- ▶ Select the range A5:A18 by dragging through it.
- ▶ Click the **Bold** button  on the Ribbon as shown in Figure 5.22.


Notice that the titles in column A are now bold. The bold formatting increases the width of the characters slightly and you may have to increase the width of column A to view the Net Surplus/Deficit title.

- Using whichever method you prefer, display all of the other titles in bold as well. Note that to bold the “Budget for Jane Doe” title, you will select the merged cell A1:F4.

Let’s underline the title of the worksheet.

- Activate cell A1.
- Click the **Underline** button  on the Ribbon as shown in Figure 5.22.

Italic print is a slanted print. Let’s change the titles to italic print.

- Select the range A1:F3 by dragging through it.
- Click the **Italic** button  on the Ribbon as shown in Figure 5.22.

Notice that all of the contents of the cells are slanted to the right. The title at the top of the worksheet is also underlined.

Let’s adjust the font for the worksheet title in cell A1. Here are a few quick definitions:

Font is a character set. That is, a font is the set of characters including the alphabet, numbers, and all special characters. A font generally has a name such as Courier, Times, Times New Roman, and so forth.

Font Style is the manner in which the font is displayed. The font may be bold, underlined, or italicized.

Size is measured in points. A point is 1/72". A good readable text is 10 or 12 point and a headline text might be 14 or 20 point.

- Select cells A1:F18 by dragging through them.
- Click the drop-down box for the Font as shown in Figure 5.25.

Notice that the font list is displayed using the font that is named.

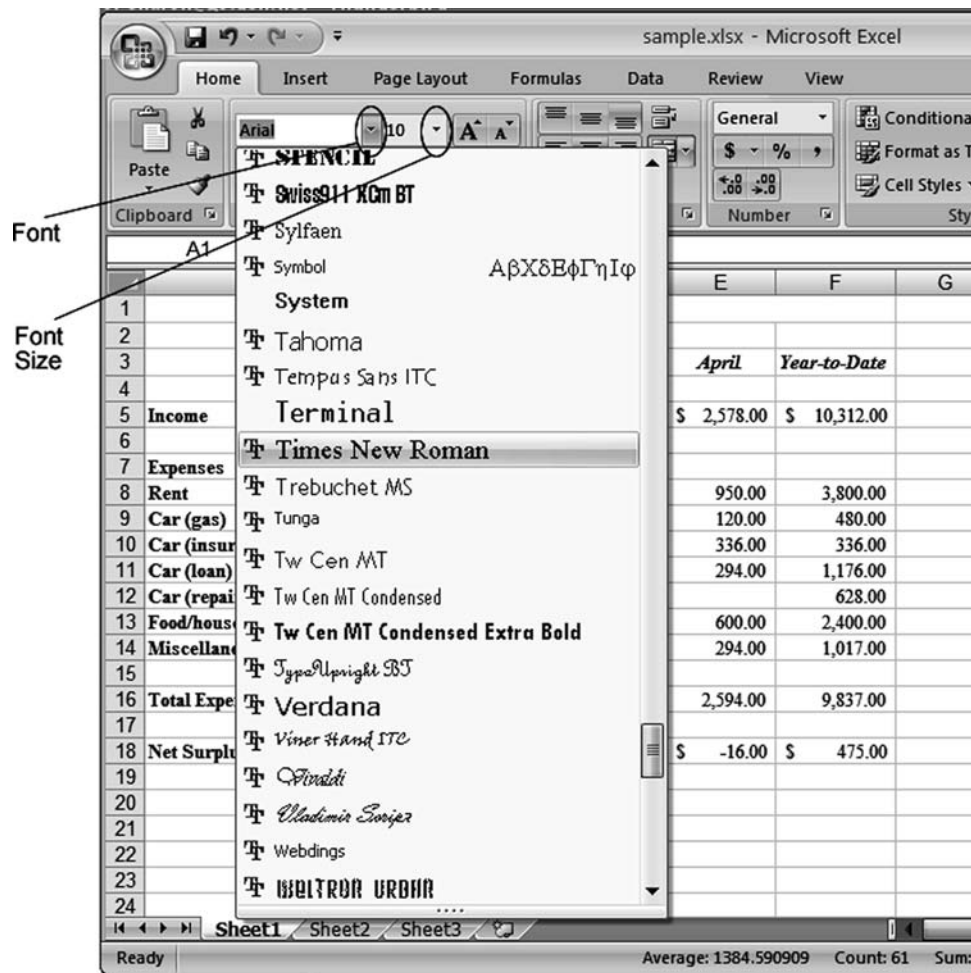


Figure 5.25 Excel Font and Font Size indicators.

- Scroll through the list to get an idea of the fonts that are available. As you scroll through the list you may see the text change font in the worksheet.
- Select the Times New Roman font by clicking the name in the **Font** box.
- Change the font size to 18 by clicking the Font Size drop-down arrow and selecting 18 from the listing. Notice that the font size has increased and the row height has increased to accommodate the characters.
- If the numbers are replaced with # symbols, increase the column width. The # symbol indicates the column width is too narrow to display all of the digits.

Let's change the color of the text in the title.

- Make sure cell A1 is selected.
- Click the Font Color drop-down arrow as shown in Figure 5.26. Notice that a color palette is displayed.

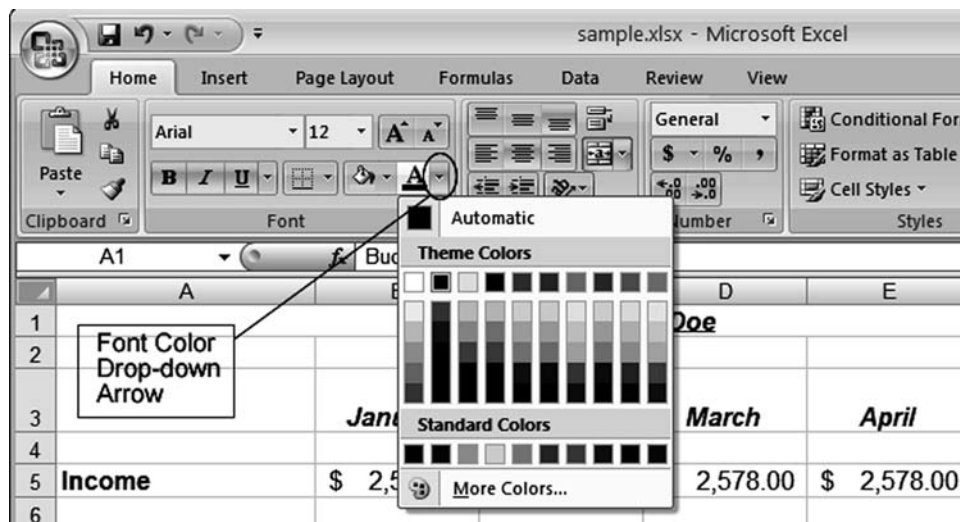


Figure 5.26 Excel Font Color drop-down arrow.

- Click one of the color swatches to change the color of the title.

When you are setting font color in a financial worksheet you should be aware that when values (numbers) are colored red, this is interpreted as negative or loss.

We can also add shading to any cell. Let's shade the Net Surplus/Deficit figures.

- Select the range A18:F18 by dragging through it.
- Click the Fill Color drop-down arrow as shown in Figure 5.27.

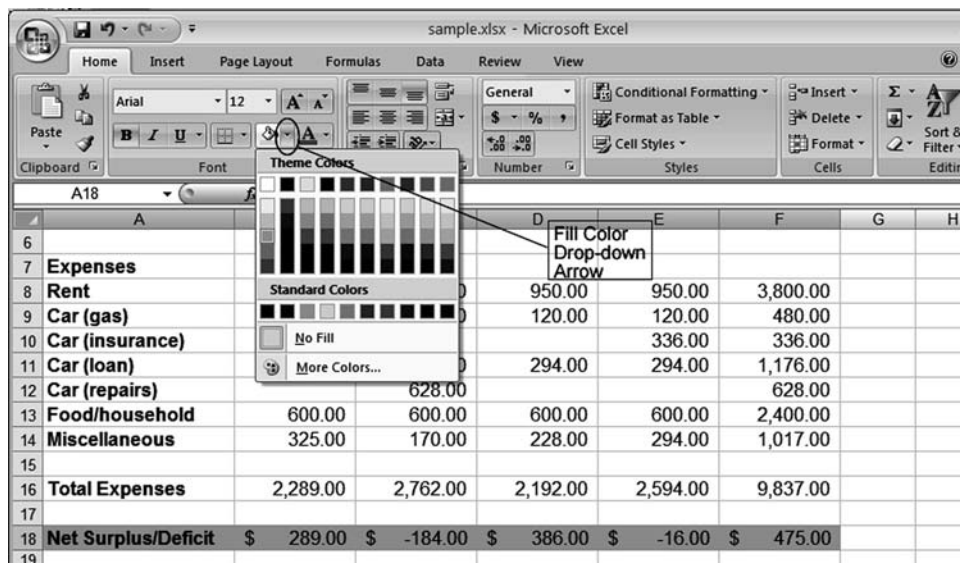


Figure 5.27 Excel Fill Color drop-down arrow.

- Click one of the very light colors to select the shading.

Your worksheet should look something like that shown in Figure 5.28.

	A	B	C	D	E	F	G
1	Budget for Jane Doe						
2							
3		January	February	March	April	Year-to-Date	
4							
5	Income	\$ 2,578.00	\$ 2,578.00	\$ 2,578.00	\$ 2,578.00	\$ 10,312.00	
6							
7	Expenses						
8	Rent	950.00	950.00	950.00	950.00	3,800.00	
9	Car (gas)	120.00	120.00	120.00	120.00	480.00	
10	Car (insurance)				336.00	336.00	
11	Car (loan)	294.00	294.00	294.00	294.00	1,176.00	
12	Car (repairs)		628.00			628.00	
13	Food/household	600.00	600.00	600.00	600.00	2,400.00	
14	Miscellaneous	325.00	170.00	228.00	294.00	1,017.00	
15							
16	Total Expenses	2,289.00	2,762.00	2,192.00	2,594.00	9,837.00	
17							
18	Net Surplus/Deficit	\$ 289.00	\$ -184.00	\$ 386.00	\$ -16.00	\$ 475.00	
19							

Figure 5.28 Excel completed worksheet.

Review

This has been a busy lab! We have covered the following topics:


- Electronic spreadsheet concepts
 - Parts of the window
 - Cell references
- Entering data in a cell
- Editing and deleting data in a cell
- Using cut/copy/paste and drag and drop techniques to copy and move cell contents
- Relative cell formulas
 - Copying cell formulas and references adjust accordingly
 - Sum built-in function
- Formatting enhancements
 - Alignment within the cell
 - Merge and center across cells
 - Bold, italic, and underline
 - Fonts and font sizes
- Printing worksheets

Exercises

1. Enter the data shown in Figure 5.29.

	A	B	C
1	Budget for Alfred Doe		
2			
3		January	
4	Income	2458	
5			
6	Expenses		
7	Mortgage	1147	
8	Car Loan	268	
9	Car Insurance		
10	Car gas/maintenance		
11	Food		
12	Clothes		
13	Entertainment		
14	Total Expenses		
15			
16	Net Surplus/Deficit		
17			


Figure 5.29 Excel Exercise 1.

- The budget sheet will have figures for January, February, and March. Copy the cell containing “January” to the two cells to the right by dragging on the bottom right corner of the cell. This enters “February” and “March” in the following two cells. This technique also works for the days of the week. (This technique only works when using the drag and drop method for copying cell contents; it does not work when using copy and paste.)
- The values for Income, Mortgage, and Car Loan remain unchanged for the three month period. Copy these values into the appropriate cells for February and March.
- Enter the values for the remaining expenses as follows:
 - Car Insurance: 325.00 paid in February only
 - Car gas/maintenance: 120.00 for January and February, 80.00 for March
 - Food: 300.00 for January, 250 for February and March
 - Clothes: 300.00 for February only
 - Entertainment: 250.00 for January, 100.00 for February and March
- Increase cell widths where appropriate in order to display the contents.
- Use the SUM function to create a formula for the total expenses.
- Create a formula for Net Surplus (Deficit), which will result in the Total Income – Total Expenses
- Create a column to the right of March for Year-to-Date calculations.
- Use the SUM function to calculate the total of each of the rows. You can use the **AutoSum** button  on the Ribbon to automatically enter the Sum function.

After you click the **AutoSum** button, you can drag to adjust the range of cells to be included in the sum.

- Save this spreadsheet as Exercise1.xlsx.

2. Apply the following formatting enhancements to the Exercise1.xlsx worksheet.

- Underline the title “Budget for Alfred Doe” and center it across all columns of the budget sheet.
- Use the font Tahoma, size 16 for the title “Budget for Alfred Doe.”
- Bold all of the titles in column A.
- Use bold and italic formatting for all of the month names.
- Center the month names in each cell.
- Wrap the Year-to-Date title in the cell.
- Select all cells that contain values and use the **Increase Decimal** button  on the Ribbon to increase all cells with values to two decimal places.
- Use the Currency formatting for the Income figures.
- Apply a light shading to the Net Surplus/Deficit row.