



# Introduction to Microsoft Excel: Part 1



## Course Objectives and Prerequisites

*Introduction to Microsoft Excel is comprised of two separate classes, Part 1 and Part 2.*

The aim of **Introduction to Microsoft Excel: Part 1** is to show you how to:

- Navigate the Excel Workbook.
- Create a basic worksheet by entering text and values.
- Work with cells and cell data by using a variety of moving and copying techniques.
- Perform calculations on data using the AutoSum feature.

The aim of **Introduction to Microsoft Excel: Part 2** is to show you how to:

- Enhance a worksheet with formatting.
- Sort data in Excel.
- Set page display and printing options.

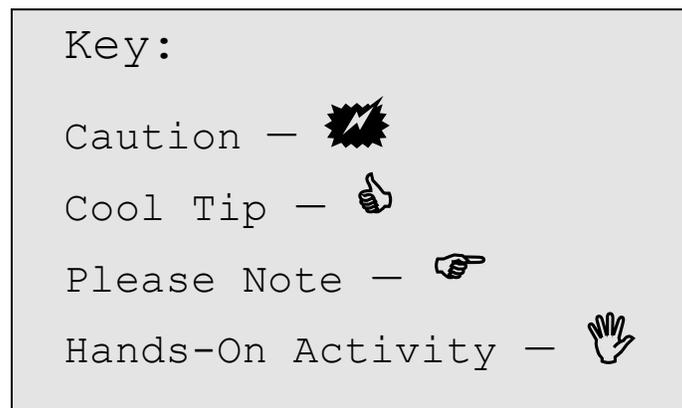
The software described is Microsoft Excel 2010 running on Windows 7.

### Prerequisites-Part 1

You should be familiar with the Windows 7 desktop and with general concepts of manipulating windows such as menus, scrollbars and dialogue boxes.

### Prerequisites-Part 2

Students should have taken the Introduction to Microsoft Excel Part 1 class or have equivalent experience. Students must be comfortable navigating in Excel and entering data.



# Introduction to Microsoft Excel Part 1

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# Introduction to Microsoft Excel: Part 1

# Lesson 1

## Starting Out with Excel

In this lesson we'll...

- ✓ *Talk about what you can do with Excel.*
- ✓ *Open up a new Excel worksheet and identify the different elements.*
- ✓ *Learn to enter and edit data.*



**Go from piles of paper  
to productivity!**

## 1-A: What Can You Do with Excel?

Microsoft Excel is an electronic spreadsheet program. An electronic spreadsheet produces professional-looking documents that perform numeric calculations rapidly and accurately.

- Excel makes it easier to experiment with numbers and create “what-if” scenarios.
- With an Excel spreadsheet you can type in equations once and then change the data many times with the computer automatically re-doing the calculations for you (unlike using a hand-held calculator or working out equations by hand!).

<i>Car Loan</i>	<i>12000</i>	
<i>Interest</i>	<i>9.6</i>	
<i>Number of Payments</i>	<i>60</i>	
<i>Monthly Payment</i>	<i>252.61</i>	

Figure 1-1: Paper Ledger

Car Loan	\$12,000.00
Interest	9.60%
Number of Payments	60
Monthly Payments	\$252.61

Figure 1-2: Excel Worksheet

- Once we have the formulas set up, we can change the variables that are called from the formula and watch the changes.

Car Loan	\$12,000.00
Interest	12%
Number of Payments	60
Monthly Payments	\$266.93

Figure 1-3: A change in data

Figure 1-3 illustrates how a worksheet is instantly updated if one of the entries is changed.

## 1–B: The Excel Workbook

When you open Excel, a new workbook is created for you. A workbook is a set of worksheets. A worksheet (or spreadsheet) is a "page" in your workbook. Excel allows you to quickly switch between different worksheets in a workbook using tabs at the bottom of the screen.

To create a new Excel workbook:

1. On the taskbar, click the Start button. 
2. In the Start menu, point to Programs (or All Programs).
3. In the Programs menu, click the Microsoft Excel program icon.



When you create a new workbook in Excel, you begin with three worksheets. You can add many more worksheets to a workbook if you need them (up to 255).

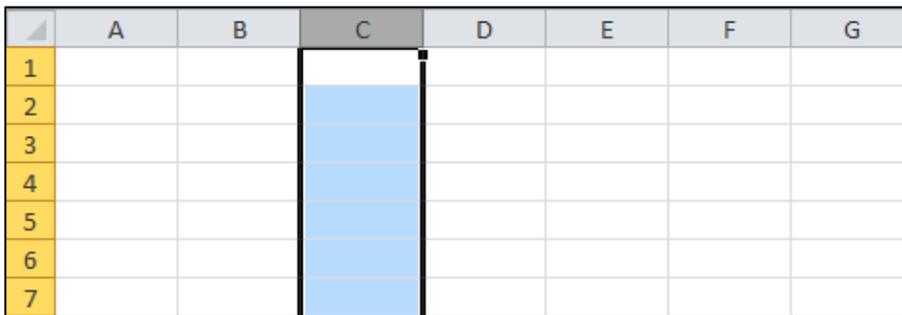
A worksheet is a grid made up of:

- columns
- rows
- cells (the intersection of a column and a row)

 The Excel worksheet is a grid of 16,384 columns by 1,048,576 rows

### Columns

In a worksheet the **column** is defined as the vertical space that is going up and down the window. Columns are designated by letters running across the top of the worksheet.



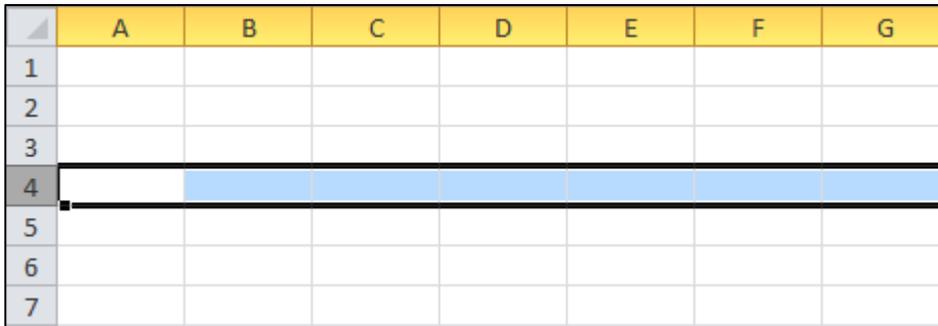
The image shows a portion of an Excel worksheet grid. The columns are labeled A through G at the top, and the rows are labeled 1 through 7 on the left. Column C is highlighted in blue, indicating it is selected. The grid consists of 7 rows and 7 columns.

	A	B	C	D	E	F	G
1							
2							
3							
4							
5							
6							
7							

Figure 1-4: Column C is selected

## Rows

In a worksheet the **row** is defined as the horizontal space that is going across the window. Numbers are used to designate each row's location.

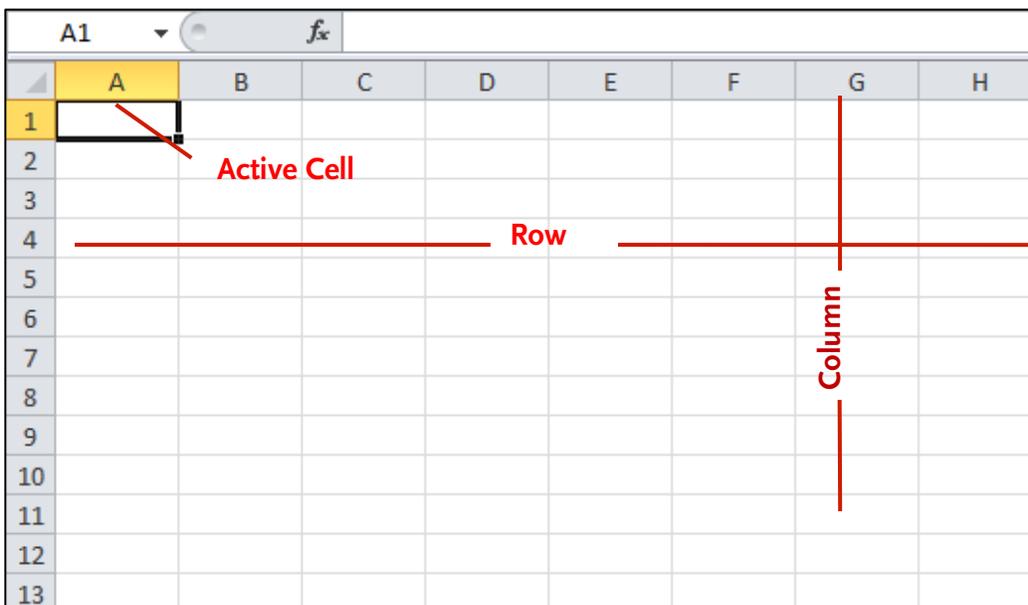


A screenshot of an Excel worksheet with columns A through G and rows 1 through 7. Row 4 is highlighted in blue, indicating it is selected. The row numbers 1 through 7 are listed on the left side of the grid.

Figure 1-5: Row 4 is selected

## Cells

A cell is the intersection of a row and a column. Cells are referenced by the column letter followed by the row number.



A screenshot of an Excel worksheet showing the intersection of columns and rows. Column A is highlighted in yellow, and row 1 is highlighted in light blue. The cell at the intersection, A1, is labeled as the 'Active Cell' with a red arrow. A red horizontal line labeled 'Row' spans across row 4, and a red vertical line labeled 'Column' spans down column G. The worksheet shows columns A through H and rows 1 through 13.

Figure 1-6: Cells are the intersection of columns and rows

The cell highlighted in the picture is called cell A<sub>1</sub>, since the cell is the intersection of Column A and Row 1. The cell to the right of it is B<sub>1</sub>, the cell below it is A<sub>2</sub>, etc.

In each cell there may be the following types of data:

- text (labels)
- number data (constants)
- formulas (mathematical equations that do all the work)

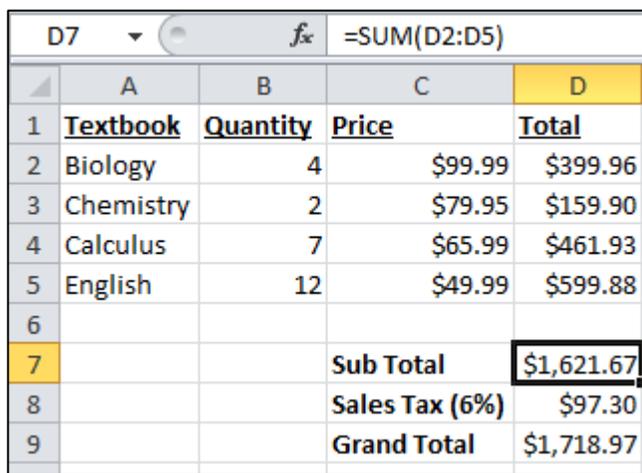
## The Mode Indicator

The mode indicator appears on the left side of the status bar and specifies the condition of the active cell. If Excel isn't working the way you expect it should, check the mode indicator. You may need to press the [Enter] key to return to the Ready mode.

## The Formula Bar

If you have entered text or number data the contents of the active cell will ALSO display in the formula bar.

If you have entered a formula, as in Figure 1-7, the result of the formula will display in the active cell and the formula will display in the formula bar.



	A	B	C	D
1	<b>Textbook</b>	<b>Quantity</b>	<b>Price</b>	<b>Total</b>
2	Biology	4	\$99.99	\$399.96
3	Chemistry	2	\$79.95	\$159.90
4	Calculus	7	\$65.99	\$461.93
5	English	12	\$49.99	\$599.88
6				
7			Sub Total	\$1,621.67
8			Sales Tax (6%)	\$97.30
9			Grand Total	\$1,718.97

Figure 1-7: The Formula Bar

## 1–C: Navigating in a Worksheet

With over a million cells available to you, it is important to know how to move around, or *navigate*, a worksheet. Understanding how to get around in Excel is one of the most important skills you can master. It helps you work faster and more accurately.

Excel places new data into your worksheet's *active cell*. The active cell is indicated by a thick, dark border surrounding it.

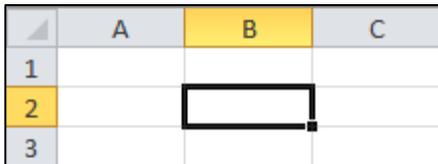


Figure 1-8: The Active Cell is B2

Press:	Move:
[tab] key	one cell to the right
[Enter] key ( <i>return on some keyboards</i> )	to the line below
an arrow key (↓ ↑ ← or →)	one cell in the direction of the arrow
[Page Down]	one screen down
[Page Up]	one screen up
[Alt] [Page Down]	one screen to the right
[Alt] [Page Up]	one screen to the left
[Home].	to the first cell (column A) of the active row.
[Ctrl] [Home].	to the first cell in the worksheet (A1)
=====	
You can also use the <b>mouse</b> pointer to click directly on the desired cell.	
If the desired cell is not visible in the worksheet window, use the <b>scroll bars</b> or the <b>Go To</b> command on the formula bar where you can enter a cell reference to move directly to that cell.	

## Entering Information

To enter information into a worksheet:

1. Navigate to the cell where you want the data to appear and type.
2. Navigate to another cell to enter the data.

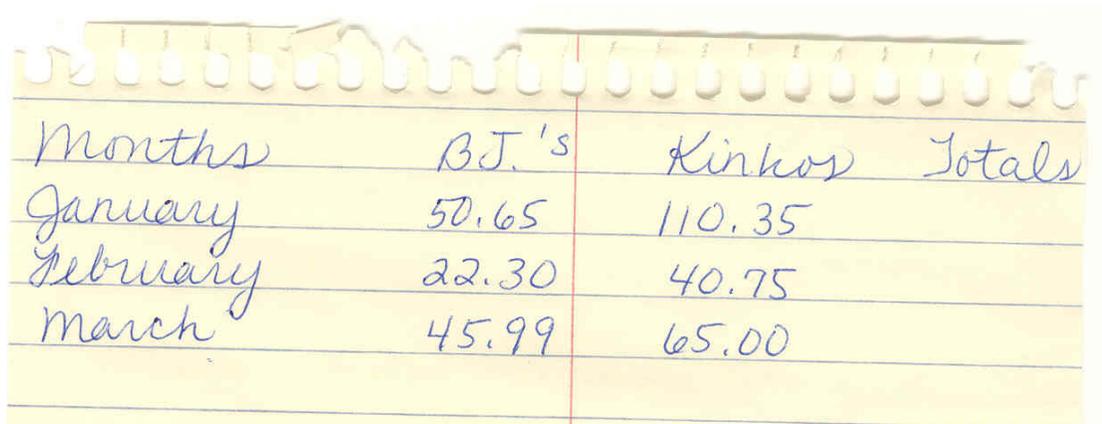
If you would like to enter the data without moving to a different cell, click the checkmark on the formula bar [  ]. *This option is used more frequently when entering formulas.*

### Activity 1 - 1

#### Enter Data into a Worksheet

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Scenario: You have been handed a piece of paper with training room expenses handwritten. You need to create a worksheet to hold this information and information that will be added later in the year.



Months	BJ's	Kinkos	Totals
January	50.65	110.35	
February	22.30	40.75	
March	45.99	65.00	

Figure 1-9: Handwritten Paper Ledger

1. Click the mouse button to select cell **A2**.
2. The active cell is now **A2**. Type "Months" in cell **A2** and press [ Tab ].
  - Pressing [ Tab ] after typing data will enter the data in that cell and move you to the cell to the right.
3. The active cell is now **B2**. Type "BJ's" in cell **B2** and press [ → ] to move right to cell **C2**.
  - Pressing [ → ] after typing data will enter the data in that cell and move you to the cell to the right.
4. The active cell is now **C2**. Type "Kinkos" in cell **C2** and click the mouse button on the green check mark in the Formula Bar (Refer to Figure 1-10).
  - Clicking [  ] on the Formula Bar will enter the data in that cell and keep you in that cell.

C2    X ✓ f <sub>x</sub> Kinkos				
	A	B	C	D
1				
2	Months	Bj's	Kinkos	
3				
4				

Figure 1-10: Enter Data with Check Mark

5. Click the mouse button to select cell **D2**.
6. The active cell is now **D2**. Type "Totals" in cell **D2** and press [ **Enter** ].
  - Pressing [Enter] after typing data will enter the data in that cell and move you to the cell/row below.
7. Finish entering the data from the handwritten ledger in Figure 1-9.
8. When you are finished, your Excel worksheet should look like Figure 1-11 below.

	A	B	C	D
1				
2	Months	Bj's	Kinkos	Totals
3	January	50.65	110.35	
4	February	22.3	40.75	
5	March	45.99	65	

Figure 1-11: Excel Worksheet through March

## 1–D: Getting Help

When you work with Excel, there will be times when you'll need some additional assistance with a particular task. There are great **help resources** built into all of the Microsoft Office products. To get help, choose one of the following methods:

- Office Assistant—Press F1.
- Click the **Help** menu in the upper right hand corner. 

Microsoft eLearning at Boston College available for Windows users.

**VIEW:** [www.bc.edu/mselearning](http://www.bc.edu/mselearning)

Develop your skills, anytime and anywhere, with self-paced online tutorials from Microsoft.

## 1–E: Editing Data

After entering the text and numeric data in your worksheet, you may find that you need to make some changes to that data. In this lesson, we'll talk about how to edit existing data.

### To change data before it's entered in a cell:

When you're entering data in a cell, what happens if you type some information into a cell incorrectly? If you haven't pressed [Enter], you can change the entry. This feature can save you time when editing your worksheets. To change an entry before you enter it into a cell, you can complete either of the following two choices:

1. To delete characters, press [Backspace].
2. Press [Esc] to clear the entire entry.

### To change data after it's entered in a cell:

If you've already entered the data in the cell, you can still change it by completing either of the following three choices:

1. Double-click the cell to return to Edit mode.
2. Click on the cell and press F2.
3. Click on the cell and type new information. The contents of the cell will be overwritten.

## Activity 1 – 2

### Edit Data in a Worksheet

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#### Scenario:

Your manager realizes that she has given you the wrong amount for the expenditures at Kinkos. Edit the figure and add the information she has provided for the month of April.

1. Click once on cell **C4** to select it.
2. Type "**33.50**" in cell **C4** and press [ **Enter** ].
3. Click the mouse button to select cell **A6**.
4. The active cell is now **A6**. Type "**April**" in cell **A6** and press [ **Tab** ] to move to the right to cell **B6**.
5. Enter the following information in your worksheet to complete the row for April.

When you are finished, your worksheet should look like Figure 1-12.

BJ' s:           **25.25**

Kinkos:         **20.99**

	A	B	C	D
1				
2	Months	BJs	Kinkos	Totals
3	January	50.65	110.35	
4	February	22.3	33.5	
5	March	45.99	65	
6	April	25.25	20.99	

Figure 1-12: Excel Worksheet through April

6. Time to save your work! Click the **File** menu and select **Save**.

# Lesson 2

## Editing Your Worksheet

In this lesson we'll...

- ✓ *Explore how the mouse pointer changes in Excel*
- ✓ *Learn about ranges of data.*
- ✓ *Use a terrific feature called AutoFill to fill cells with a series of data.*
- ✓ *Learn to move and copy data into other cells.*
- ✓ *Insert and delete rows and columns.*
- ✓ *Explore the Undo and Redo commands.*

## 2-A: Excel Mouse Pointers

As with other Microsoft programs, the shape of the pointer changes as you are working in Excel.

Each pointer shape is communicating something about how Excel is working. The shape of the pointer when you click and drag a cell will greatly influence the results of the click and drag. The following table includes a description of each of the pointer shapes you may encounter in Excel.

Shape	Implication	Action
	The default pointer shape.	Moves cell pointer or selects a range of cells.
	Appears when the pointer is on a border (column, row, or window). When adjusting row height, the arrows point up and down. When adjusting column width, the arrows point right to left.	Adjusts the column width, row height, or window size.
	Appears when you are editing the contents of a cell.	Moves the insertion point within the cell.
	Appears when you are at the "fill corner" of a cell or range of cells.	AutoFills other cells with similar information.
	Appears when you are pointing to the border of a cell.	Moves the selected cell to a new location.

Excel's **Text to Speech** feature allows you to audibly verify your data. Use the Text to Speech Toolbar (Click Customize Quick-Access Toolbar, More Commands, Speak Cells, and Add) to display the Text to Speech Toolbar.

Select the cells you want to verify. Click the **Speak Cells** icon to have Excel read back each cell in your selection. You can turn off this feature with the **Stop Speaking** icon.

## 2-B: Working with Ranges

### What is a range?

A range is a rectangular group of adjacent cells in a worksheet. A range is the selected area that will be affected by the next command.

### To select a range of cells:

With the mouse, point to the center of the cell in one corner of the range (the mouse will look like an empty cross (☒)), then do one of the following:

- Press and hold the mouse button while dragging to the opposite corner of the range; release the mouse button.
- Press and hold the [Shift] key and click on the opposite corner of the range to select all cells in between.
- Press and hold the [Shift] key and press the arrow keys to highlight the range.

Selecting a range of data can be helpful when working in an Excel worksheet. Selecting ranges allow you to do the following that we will explore in this class:

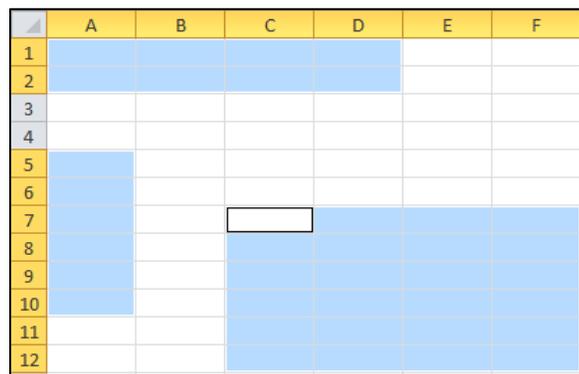
- Apply formatting to a group of cells in a range (instead of formatting one cell at a time).
- Copy/Delete multiple cells at once.
- Minimize the area in which data will be entered.
- Select an area to use text-to-speech.

### Referencing a Range

A range is referenced by the first cell reference, [Column Letter, Row Number]:" and then the last cell reference.

Some examples of ranges are selected in Figure 2-1:

- A1:D2
- A5:A10
- C7:F12



The image shows an Excel spreadsheet with columns A through F and rows 1 through 12. Three ranges of cells are highlighted in light blue: A1:D2 (rows 1-2, columns A-D), A5:A10 (rows 5-10, column A), and C7:F12 (rows 7-12, columns C-F). The cell C7 is currently active and contains a small white box.

	A	B	C	D	E	F
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Figure 2-1: Ranges

## 2-C: Using the AutoFill Feature

Using AutoFill you can quickly copy the contents of one cell (text, numbers and formulas) into an adjoining cell or complete a series from a pattern you have established.

The Fill Handle is the box at the lower-right corner of a cell or range that you can use to activate Excel's Auto Fill feature.

### To use AutoFill to copy the contents of one cell:

1. Click anywhere inside the cell that you want to copy to select it.
2. Rest the mouse pointer on the Fill Handle at the lower-right corner of the selected cell. The mouse pointer will change to a solid cross ( + ).
3. Once the pointer has changed to a solid cross, click and hold the mouse button down and drag the Fill Handle to the adjoining cell that you want to copy into (You can copy down or across).
4. Release the mouse button. Excel fills the cell with the data.

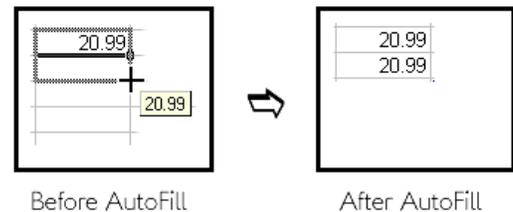


Figure 2-2: AutoFill Copy Example

### To use AutoFill to create a series:

Define your own series by entering at least two values from which Excel can compute the size of the increase or decrease from one entry to the next.

For example, to create a series beginning with 5 and increasing by 5's, enter 5 and 10. Select those cells and then AutoFill. Excel will create the series 5, 10, 15, 20 ...

1. Highlight the two (or more) adjoining cells that establish the pattern of your series.
2. Rest the mouse pointer on the Fill Handle at the lower-right corner of the selection. The mouse pointer will change to a solid cross ( + ).
3. Once the pointer has changed to a solid cross, click and hold the mouse button down to drag the Fill Handle as far as you want cells filled with the data.
4. Release the mouse button. Excel fills the cells in series, continuing the established pattern.

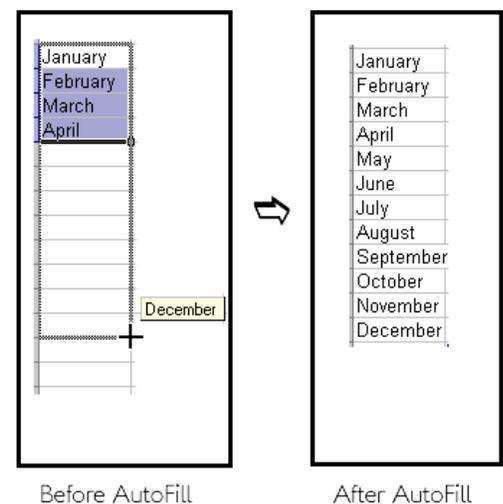


Figure 2-3: AutoFill Series Example

Excel also Automatically fills series that it recognizes, for example Months of the year, days of the week, or dates.

For date entries, Excel will also automatically adjust the entries as it fills to create a series. For example, 1/21/2005 will be followed by 1/22/2005, 1/23/2005 and so on.

## Activity 2 - 1

### Using AutoFill to Complete a Series

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#### Scenario:

You are ready to enter the expense data for the remaining months of the year. Use AutoFill to quickly enter the months May through December.

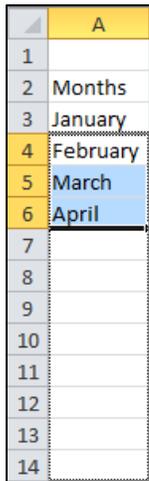
1. Highlight to select cells **A4** through **A6**. The range which establishes the pattern of your series is now selected (Refer to Figure 2-4).



	A
1	
2	Months
3	January
4	February
5	March
6	April

Figure 2-4: AutoFill Series Established

2. Rest the mouse pointer on the Fill Handle at the lower-right corner of the selection. The mouse pointer will change to a solid cross ( + ).
3. Once the pointer has changed to a solid cross, click and hold the mouse button down to drag the Fill Handle to cell **A14** (Refer to Figure 2-5).
4. Release the mouse button. Excel fills the months May through December in cells A7 through A14.



	A
1	
2	Months
3	January
4	February
5	March
6	April
7	
8	
9	
10	
11	
12	
13	
14	

Figure 2-5: Fill Handle

## Activity 2 - 2

### Practice selecting a Range of Cells

#### Scenario:

Sometimes it is easier to select the range before entering data. This is especially useful if you are familiar with entering numbers with a keypad.

Select the proper range and enter the expense data for BJ's for May through December.

1. With the mouse, point to the center of cell **B7** and press and hold the mouse button while dragging down through cell **B14**.
2. Release the mouse button in cell **B14** and the range B7:B14 will be highlighted (Refer to Figure 2-6).

	A	B	C	D
1				
2	Months	BJs	Kinkos	Totals
3	January	50.65	110.35	
4	February	22.3	33.5	
5	March	45.99	65	
6	April	25.25	20.99	
7	May			
8	June			
9	July			
10	August			
11	September			
12	October			
13	November			
14	December			

Figure 2-6: Range B7:B14

3. Without clicking the mouse, type "30.50". Data is entered in cell **B7**, the first cell in the selected range.
4. Press [Tab] to move directly down to cell **B8**.
5. Without clicking the mouse, type "10.75". Data is entered in cell **B8**, the next cell in the range.
6. Press [Tab] to move directly down to cell **B9**.
7. Continue this process of data entry for the months July through December according to the expense data listed below.
  - July = 0.00
  - August = 0.00
  - September = 97.60
  - October = 45.25
  - November = 20.75
  - December = 38.15

	A	B	C	D
1				
2	Months	BJs	Kinkos	Totals
3	January	50.65	110.35	
4	February	22.3	33.5	
5	March	45.99	65	
6	April	25.25	20.99	
7	May	30.5		
8	June	10.75		
9	July	0		
10	August	0		
11	September	97.6		
12	October	45.25		
13	November	20.75		
14	December	38.15		

Figure 2-7: Range B7:B14 Complete

When you are finished, your worksheet should look like Figure 2-7.

## 2-D: More Selecting Data

### Selecting (Highlighting) an entire Row, Column, or Sheet

- To select an entire Row, click on the Row Heading (the number at the left of the row).

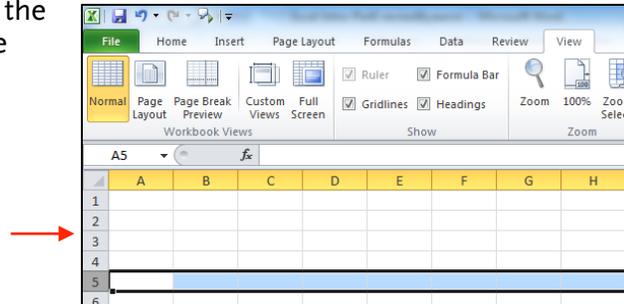


Figure 2-8: Select a Row

- To select an entire Column, click on the Column Heading (the letter at the top of the column).

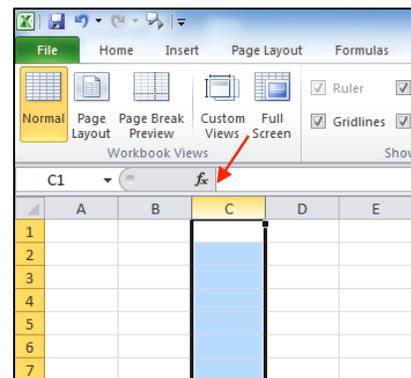


Figure 2-9: Select a Column

- To select an entire sheet, click in the gray box to left of Column Heading A and above Row Heading 1.

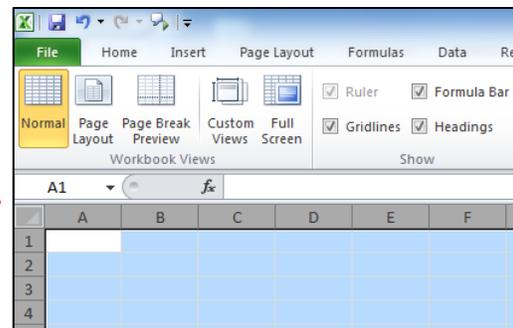


Figure 2-10: Select Entire Sheet

## Adjacent vs. Non-adjacent Ranges

In Excel, you can select more than one range at the same time. However, those ranges do not have to be adjacent. To select a group of separate (non-adjacent) ranges that you want to affect at the same time:

- *Windows:* Highlight the first continuous range as you did above, then hold down the [Control] key and select additional non-adjacent cells and cell ranges, these must be non-adjacent cells.
- *Macintosh:* Highlight the first continuous range as you did above, then hold down the [Command] key and select additional non-adjacent cells and cell ranges.

## 2-E: Moving, Copying, Cutting and Pasting Data

Occasionally, you may need to transfer data from one location in a worksheet to another; Microsoft Excel offers a few methods for doing this. Moving data can save you time. For instance, if you want the data in a different place, rather than delete from its original location and retype it in the new location, you can simply move it.

The most convenient way to move data short distances is to drag and drop the data from one location to another.

### To move data using the Drag-and-Drop method:

1. Click the mouse to select (highlight) the item(s) you want to move.
2. Once the selection is highlighted, release the mouse button.
3. Move the mouse pointer over the border of the selection. The mouse pointer changes to a four-headed arrow (  )
4. Press and hold the mouse button and drag the selection to its new location. As you move, an outline follows showing the shape of the selection.
5. When it covers the area you want to fill, release the mouse button.

## Copying, Cutting, and Pasting Data

Moving data is one method for getting data from one area of your worksheet to another. Two other options available in Excel are (1) copy and paste and (2) cut and paste. You can paste the data into another area in the same worksheet or paste into a completely different worksheet.

When you copy and paste data, Excel copies the cell contents and pastes them in another location. When you cut and paste data, Excel moves the data from its current location to its new location.

Excel surrounds the selected area to be copied (or cut) with a moving dotted line called a marquee. To deselect data (and stop the marquee), hit the escape key.

### To copy and paste data:

1. Select the data to be copied.
2. Once the data is selected, use one of the following methods to copy and paste it.

- Use the Home Toolbar:  

Click the Copy button; select the destination, then click the Paste button.

- Use Keyboard Shortcuts:

Press **[Ctrl] C** to copy; select the destination, then press **[Ctrl] V** to paste.

- Use the Keyboard:

Point to the border of the cell range while pressing the **[Ctrl]** key, drag to new location, release mouse button and then **[Ctrl]** key.

- Use the Fill Handle:

Drag the Fill Handle on the selection to the adjacent cells to which you want to copy the data and release the mouse button.

## To cut and paste data:

1. Select the data to be cut.
2. Once the data is cut, use any of the following methods to cut and paste it.

- Use the Home Toolbar:  

Click the Cut button; select the destination, then click the Paste button.

- Use Keyboard Shortcuts:

Press **[Ctrl] X** to cut; select the destination, then press **[Ctrl] V** to paste.

When you copy or cut cells, Excel automatically adjusts all relative references, such as formulas.

## Activity 2 - 3

### Moving and Copy and Pasting Data

#### Scenario:

The expense data for the months of May through December was for Kinkos not BJ's. Use the Drag and Drop method to move the data to the proper column.

1. Select cells **B7:B14** (Refer to Figure 2-11).

	A	B	C
1			
2	Months	BJs	Kinkos
3	January	50.65	110.35
4	February	22.3	33.5
5	March	45.99	65
6	April	25.25	20.99
7	May	30.5	
8	June	10.75	
9	July	0	
10	August	0	
11	September	97.6	
12	October	45.25	
13	November	20.75	
14	December	38.15	

Figure 2-11: Selected Range B7:B14

2. Once the range is selected, release the mouse button.
3. Position the mouse pointer over a border of the selection. The mouse pointer changes to a four-headed arrow.
4. Press and hold the mouse button and drag the selection to Column C so that it fills the range **C7:C14**. An outline in the shape of the range will appear in this new location (Refer to Figure 2-12).

	A	B	C
1			
2	Months	BJ's	Kinkos
3	January	50.65	110.35
4	February	22.3	33.5
5	March	45.99	65
6	April	25.25	20.99
7	May	30.5	
8	June	10.75	
9	July	0	
10	August	0	
11	September	97.6	
12	October	45.25	
13	November	20.75	
14	December	38.15	

Figure 2-12: Drag-and-Drop

5. Once the outline covers the range **C7:C14**, release the mouse button. Excel moves the expense totals from B7:B14 to C7:C14 as seen in Figure 2-13.

	A	B	C
1			
2	Months	BJs	Kinkos
3	January	50.65	110.35
4	February	22.3	33.5
5	March	45.99	65
6	April	25.25	20.99
7	May		30.5
8	June		10.75
9	July		0
10	August		0
11	September		97.6
12	October		45.25
13	November		20.75
14	December		38.15

Figure 2-13: Moved Data

**Scenario:**

At the end of the year you will need separate totals for each vendor. Copy and paste the word Totals.

1. Click in cell **D2** to select it.
2. Select **Home Menu > Copy**  from the Menu Bar.
3. Click in cell **A16** to select it.
4. Select **Home Menu > Paste**  from the Menu Bar. Your updated worksheet should look like Figure 2-14.

	A	B	C	D
1				
2	Months	BJs	Kinkos	Totals
3	January	50.65	110.35	
4	February	22.3	33.5	
5	March	45.99	65	
6	April	25.25	20.99	
7	May		30.5	
8	June		10.75	
9	July		0	
10	August		0	
11	September		97.6	
12	October		45.25	
13	November		20.75	
14	December		38.15	
15				
16	Totals			
17				

Figure 2-14: Copy and Paste Data

## 2-F: Cells (clearing, inserting, deleting)

### Clearing Data in Cells

To erase data from a cell without deleting the cell you must select use the **Clear** command. There are four options: All, Formats, Contents, and Comments.

#### To clear data:

1. Highlight the cell, range of cells, column, or row you want to clear.
2. In the **Home Tab**, select **Editing > Clear**.
3. Select the appropriate option as described in the table below.

<b>All</b>	Clears the data, formatting, and any notes in the cell. This will result in a blank cell with a GENERAL format.
<b>Formats</b>	Clears the format but leaves the data and notes intact. The selected cells will return to a GENERAL format.
<b>Contents</b>	Clears the data and any formula from the selected cells but leaves the formatting and the notes.
<b>Comments</b>	Clears the notes and leaves the formatting and the data intact.

### Pasting Between Existing Cells in a Worksheet (Inserting)

Excel will allow you to paste a cell or a range of cells between existing cells.

1. Select and copy (or cut) the cells you want inserted between existing cells.
2. Right click and use **Insert > Copied Cells**.

Respond to the dialog box by selecting the direction to move cells to allow insertion.

When pasting a range of cells, it is a good idea to only select the upper-left hand cell of the range you want to paste in. If you choose to highlight the entire paste area, the range must be the same size and shape of your copy/cut area.

### Deleting Cells

1. Select the cell(s) you want to delete.
2. Right click and use **Edit > Delete**.  
Respond to the dialog box by selecting the direction to shift cells to allow for the deletion.

## 2-G: Rows and Columns (inserting, deleting)

Sometimes when working with data you realize you've missed some information. Now that you are able to navigate successfully in Excel, you could move the data around to make room, but that's not always ideal. There is an easier way to complete this task. You can insert and delete Rows and Columns without having to move existing data.

### Inserting Columns

Inserting a Column creates a blank column and moves all columns one column to the right, including the highlighted column. Select several contiguous columns to insert the same number of columns.

#### To insert a column:

1. Click on the Column Header *to the right* of the location where you wish to insert a new column.
2. Right Click, and select **Insert**.

### Inserting Rows

Inserting a Row creates a blank row and moves all rows down one row, including the highlighted row. Select several contiguous rows to insert the same number of rows.

#### To insert a row:

1. Click on the Row Header *below* the location where you wish to insert a new row.
2. Right Click, and select **Insert**.

### Deleting Columns and Rows

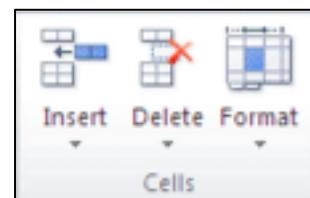
Deleting a column removes the selected column or row. The columns to the right of the deleted column then shift left.

Deleting a row removes the selected row. The rows below the deleted row shift up.

#### To delete a column or row:

1. Click on the Column or Row Header you wish to delete.
2. Right Click, and select **Delete**.

You can also use the **Cells** section of the **Home** tab to insert or delete rows and columns.



## Activity 2 - 4

### Insert a Column and Enter Data

#### Scenario:

You need to add a column to record expenses for Star Market. Insert a column between Kinkos and Totals for Star Market and update the expenses.

1. Click on the **Column Header D** to select Column D.
2. Right Click, and select **Insert**.

Excel inserts a new column to the left. As seen in Figure 2-15, the Totals column is now moved to Column E.

	A	B	C	D	E
1					
2	Months	BJs	Kinkos		Totals
3	January	50.65	110.35		
4	February	22.3	33.5		
5	March	45.99	65		
6	April	25.25	20.99		
7	May		30.5		
8	June		10.75		

Figure 2-15: Insert Column

3. Click in cell **D2** to select it.
4. Type "**Star Market**".
5. Click in cell **D13** to select it.
6. Type "**6.99**"
7. Update your worksheet with the new data for BJ's for the months of May through December so that your worksheet looks like Figure 2-16.

	A	B	C	D	E
1					
2	Months	BJs	Kinkos	Star Market	Totals
3	January	50.65	110.35		
4	February	22.3	33.5		
5	March	45.99	65		
6	April	25.25	20.99		
7	May	31.13	30.5		
8	June	0	10.75		
9	July	0	0		
10	August	0	0		
11	September	125.6	97.6		
12	October	40.1	45.25		
13	November	35	20.75	6.99	
14	December	25.99	38.15		
15					
16	Totals				

Figure 2-16: Updated Worksheet

## 2-H: Rows and Columns (resizing)

### Resizing Columns

In many situations, a cell will be too wide or too narrow to properly display the data it contains. In these situations, you can resize the cell's column so that the data will be displayed correctly.

There are three ways to specify the column width in Excel.

1. Drag the Double-Arrow   
Position the pointer on the Column Header division line. The mouse pointer will change to a double-arrow indicating that you can now resize the column. Drag left or right to resize the column. Release the mouse when the column is at the width you want.
2. Format the Column Width  
Select the column(s) you want to resize. Right Click. Select **Column Width**, and then type the value that you want.
3. AutoFit the Column Width  
Select the column(s) you want to resize. On the **Home** tab, in the **Cells** group, click **Format**. Under **Cell Size**, click **AutoFit Column Width**.

### Resizing Rows

To resize a row to a new height in Excel:

1. Drag the Double-Arrow   
Position the pointer on the Column Row division line between the row to be resized and the one directly below it. The mouse pointer will change to a double-arrow indicating that you can now resize the row. Drag up or down to resize the row. Release the mouse when the row is at the height you want.
2. Format the Row Height  
Select the row(s) you want to resize. Right Click. Select **Row Height**, and then type the value that you want.
3. AutoFit the Row Height  
Select the row(s) you want to resize. On the **Home** tab, in the **Cells** group, click **Format**. Under **Cell Size**, click **AutoFit Row Height**.

A shortcut to AutoFit a row is to double-click on the dividing line to the right of the column header or below the row number header.

## Activity 2 - 7 Resizing Columns

---

### Scenario:

A couple of the columns in the worksheet are too narrow to fit the data. You will need to resize the width of Columns A and D so that the text "September" and "Star Market" will fit.

1. Click on the **Column Header A** to select Column A.
2. On the **Home** tab, in the **Cells** group, click **Format**. Under **Cell Size**, click **AutoFit Column Width**. Browse down the column to notice that "September" now fits completely in its cell.
3. Double click the dividing line between **Column D and E**. Notice that "Star Market" now fits completely in its cell.



### UNDO and REDO

Undo allows you to reverse one or more of your most recent actions.

- Once you use the Undo feature, the Redo feature becomes available.
- The Redo feature allows you to restore the results of the command or action you reversed with the Undo feature.
- Both features can be accessed using the Standard toolbar or the Edit menu.

### Multiple Actions

You can also undo or redo multiple actions using the drop-down arrow next to the Undo or Redo buttons on the Standard toolbar.



# Lesson 3

## Using the AutoSum feature

In this lesson we'll...

- ✓ *Discuss formulas and functions*
- ✓ *Learn about the AutoSum feature*
- ✓ *Use AutoFill to copy a function*

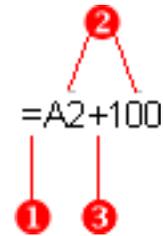
## 3-A: Formulas and Functions Overview

### Formula

A **formula** is a set of instructions that you enter in a cell to perform calculations on values entered into the cells of a worksheet. Formulas consist of the addresses of the cells containing the values and the appropriate mathematical operators.

All formulas include three key elements:

1. An equal sign (=) to begin the formula.
2. The cell references or values you wish to include in the calculation.
3. The mathematical operator(s) to be used in the calculation.

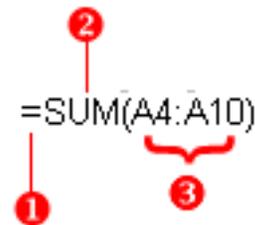


### Function

A **function** is a built-in Excel formula. You can use functions to simplify the process of entering formulas. For example, if you wanted to add the values of cells D1 through D10, you would type the formula `"=D1+D2+D3+D4+D5+D6+D7+D8+D9+D10"`. A shorter way would be to use the SUM function and simply type `"=SUM(D1:D10)"`.

All functions contain the same syntax:

1. An equal sign (=) at the beginning.
2. The **Function name** follows next.
3. The **Arguments** (the cell references to be used in the calculation enclosed in parentheses) come last.



## 3-B: AutoSum Feature

Excel's AutoSum tool allows you to quickly enter several commonly used functions without needing to know or type any function syntax.

To calculate a sum using AutoSum:

1. Click on the cell into which you want the result to appear.
2. Click the **AutoSum** button on the Standard Toolbar. 
3. Excel will highlight a range that it assumes you would like to sum.
  1. If Excel has chosen the correct range, press **[Enter]**.
  2. If Excel has chosen the incorrect range, simply click and highlight the correct range, and then press **[Enter]**.

**When reselecting a range, be careful not to select the cell that contains the function!**

4. Excel calculates and enters the sum.

Functions available through the AutoSum feature:

Function	Example	Description
Sum	=SUM(A4:A10)	Adds the values in cells A4 through A10.
Average	=AVERAGE(B1:B4)	Calculates the mean average of the values in cells B1 through B4.
Minimum	=MIN(C5:C20)	Finds the minimum value of the values in cells C5 through C20.
Maximum	=MAX(D1:D10)	Finds the maximum value of the values in cells D1 through D10.
Count	=COUNT(A2:A18)	Finds the number of numeric entries in cells A2 through A18.

## Calculating an Average, Minimum, Maximum or Count

1. Click on the cell into which you want the calculation result to display.

Click on the **downward arrow** next to the AutoSum button  to select

Average, Minimum, Maximum or Count.

2. Excel will highlight a range that it assumes you would like to perform the calculation on.
  1. If Excel has chosen the correct range, press **[Enter]**.
  2. If Excel has chosen the incorrect range, simply click and highlight the correct range, and then press **[Enter]**.

**When reselecting a range, be careful not to select the cell that contains the function!**

3. Excel calculates and enters the result.

## Use AutoFill to copy a formula:

Once you've created a formula, you can copy it by using the AutoFill feature:

1. Select the cell with the formula you wish to copy.
2. Rest the mouse pointer on the Fill Handle at the lower-right corner of the selected cell. The mouse pointer will change to a solid cross (  ).
3. Once the pointer has changed to a solid cross, click and hold the mouse button down and drag the Fill Handle to the adjoining cell(s) that you want to copy the formula into.
4. Release the mouse button. Excel fills the cell(s) with the formula while also updating the cell references accordingly!

## Activity 3 - 1

### Calculate Sums Using AutoSum

---

#### Scenario:

You have finished entering all the expense data for the year. You are now ready to calculate the totals for each vendor in each of the respective columns. You will use AutoSum and AutoFill to accomplish this task.

1. Click in cell **B16** to select it.
2. Click the **AutoSum** button on the Standard Toolbar.
3. Excel highlights the range **B3:B15** (Refer to Figure 3-1). Since this is correct, press **[Enter]**.

	A	B	C	D	E
1					
2	Months	BJs	Kinkos	Star Market	Totals
3	January	50.65	110.35		
4	February	22.3	33.5		
5	March	45.99	65		
6	April	25.25	20.99		
7	May	31.13	30.5		
8	June	0	10.75		
9	July	0	0		
10	August	0	0		
11	September	125.6	97.6		
12	October	40.1	45.25		
13	November	35	20.75	6.99	
14	December	25.99	38.15		
15					
16	Totals	=SUM(B3:B15)			

Figure 3-1: AutoSum BJs

4. Excel enters the total for BJs at **402.01**.
5. Repeat these steps to use **AutoSum** to calculate the totals for **Kinkos** and **Star Market**.

**NOTE:** Be careful when calculating the sum for Star Market – Excel might not always assume the correct cell range...

6. When you are finished, your worksheet should look similar to Figure 3-2.

	A	B	C	D	E
1					
2	Months	BJs	Kinkos	Star Market	Totals
3	January	50.65	110.35		
4	February	22.3	33.5		
5	March	45.99	65		
6	April	25.25	20.99		
7	May	31.13	30.5		
8	June	0	10.75		
9	July	0	0		
10	August	0	0		
11	September	125.6	97.6		
12	October	40.1	45.25		
13	November	35	20.75	6.99	
14	December	25.99	38.15		
15					
16	Totals	402.01	472.84	6.99	

Figure 3-2: Totals

## Activity 3 – 2

### Calculate Totals for each month using AutoSum and AutoFill

#### Scenario:

You are now ready to calculate the totals for each month. In this activity you will use AutoSum to calculate the sum for the month of January. You will then use the AutoFill feature to calculate the totals for the remaining months.

1. Click in cell **E3** to select it.
2. Click the **AutoSum** button on the Standard Toolbar.

	A	B	C	D	E
1					
2	Months	BJs	Kinkos	Star Market	Totals
3	January	50.65	110.35		=SUM(B3:
4	February	22.3	33.5		SUM(nur
5	March	45.99	65		

Figure 3-3: January Totals

3. Press [**Enter**]. Excel performs the calculation and your total for January is entered as 161.
4. Click cell **E3** to select it (this is the cell containing the formula you want to copy).
5. Rest the mouse pointer on the Fill Handle at the lower-right corner of the selected cell. The mouse pointer will change to a solid cross ( **+** ).
6. Once the pointer has changed to a solid cross, click and hold the mouse button down to drag the Fill Handle to cell **E14**.
7. Release the mouse button. Excel calculates and enters the totals for the remaining months! Your worksheet should now look like Figure 3-4.

	A	B	C	D	E
1					
2	Months	BJs	Kinkos	Star Market	Totals
3	January	50.65	110.35		161
4	February	22.3	33.5		55.8
5	March	45.99	65		110.99
6	April	25.25	20.99		46.24
7	May	31.13	30.5		61.63
8	June	0	10.75		10.75
9	July	0	0		0
10	August	0	0		0
11	September	125.6	97.6		223.2
12	October	40.1	45.25		85.35
13	November	35	20.75	6.99	62.74
14	December	25.99	38.15		64.14

3-4: AutoFill Sum

## CHALLENGE Activity 3 – 1

### Calculate Yearly Average Cost for each Vendor

---

#### Scenario:

You are now interested in determining what the average yearly cost for each Vendor.

1. Click in cell **A17** to select it.
2. Type: **Average**
3. **Click in cell B17 to select it.**
4. Click the downward arrow next to the **AutoSum** button on the Toolbar and select **Average**.
5. Use your mouse to select the correct range (B3:B14).
6. Press **[Enter]**.

Excel performs the calculation and displays the average for B.J.s in cell **B17**.

7. In cell C17, practice calculating and average for Kinkos. Except this time edit the range reference in the Formula Bar instead of using your mouse to select the correct range.

## CHALLENGE Activity 3 – 2

### Calculate Yearly Highest Cost for each Vendor

---

Working in row 18, use the AutoSum feature to calculate the highest amount you paid during the year to BJs and Kinkos.

## CHALLENGE Activity 3 – 3

### Calculate Yearly Lowest Cost for each Vendor

---

Working in row 19, use the AutoSum feature to calculate the lowest amount you paid during the year to BJs and Kinkos.

For more information on Excel, the following sources are recommended:

- Try the Help menu built into Microsoft Excel.
-  Take free, online Excel training courses:  
<http://office.microsoft.com/training>

Once at the above Web page, under the **Office 2010 Training** section, select **Excel 2010**. “Get to know Excel 2010: Create your first spreadsheet” and “How to create a basic chart in Excel 2010” are two examples you will find in the Excel Courses listing.

Windows users at Boston College may also use Microsoft eLearning Modules  
For details, view: <http://www.bc.edu/mselearning>

### Introduction to Excel Part 1

This course book was created by Serene Silva and Cristin Richard  
and revised by Sarah Sletzinger for Boston College  
Information Technology Services, Communications & Training.

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