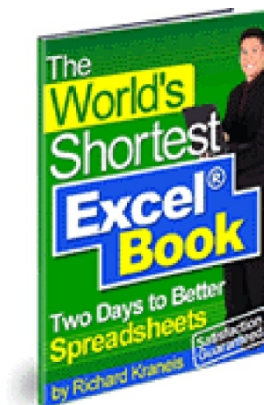


# The World's Shortest Excel<sup>®</sup> Book



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## I. Welcome

Welcome to **The World's Shortest Excel Book**. You are just a dozen major concepts away from a much better understanding of Excel.

### **TWSEB Updated for 2011**

A lot has happened to Excel since I first wrote and sold TWSEB about 2004. I could write for several pages on new features to Excel 2007 and 2010. But for me, the most powerful Excel feature is a spreadsheet that has grown from 65536 rows to over 1,000,000 rows. TWSEB is written for both Excel 2007 and Excel 2010.

### **30 Pages or Less**

In my 2004 edition of The World's Shortest Excel book I worked very hard to cover complex topics in 2 pages. In this edition I may allow myself 3 pages for a major concept. But ultimately, this is a short ebook used to empower "smart people who love ideas" but are a little uncomfortable with numbers.

I know YouTube and extensive videos are popular on the Internet, but I still believe there is a place for a short ebook that you can read off and on for a few days or a week that will make you better at Excel, faster than you ever imagined.

### **This e-book came with practice files**

When you purchased **The World's Shortest Excel Book** you downloaded a WinZip file. That file when unzipped contained this document and all of your Excel practice files.

### **Read TWSEB and Join My Forum**

In 2004 I sold only an ebook: **The World's Shortest Excel Book**. But for 2011 and onward, I encourage you to join and use the Your Excel Coach forum. My paid forum is my classroom for helping reader's with quick advice on their specific Excel questions. I can't build your spreadsheets for you, but I can guide you with good Excel coaching on solving your spreadsheet problems.

### **Good Luck**

If you have any comments drop me an email at [rich@YourExcelCoach.com](mailto:rich@YourExcelCoach.com). (In the subject of your email, please include the phrase **twseb**). Read your e-book and use its techniques as soon as possible. Good luck!

## II. Comparing Excel 2003, 2007, and 2010

So much has changed in the Excel world in the past 8 years. Here's my attempt to explain a few user interface concepts.

### Excel 2003 or Older Version

This is a world of menus, menus, and more menus. Excel 2007 replaced the menus with ribbons. Some people like it, some people don't.

### Excel 2007

Yes, we now have an Office button instead of the File menu. Additionally, Excel ribbons have replaced the extensive menus of Excel 2003.

But if the Excel ribbons seem awkward be glad that you now have over one million rows for your spreadsheet (1,048,576 to be exact) and 16,384 rows. That's a whole lot more than the 65,536 rows and 256 columns of Excel 2003. If you work with huge amounts of data, Excel 2007 is good news.

Formula functions have expanded in number from Excel 2007 to Excel 2010. But for the average user, you won't know the difference.

### Excel 2010

Users weren't too fond of Excel's **Office** button and Microsoft replaced it with a **File** menu for Excel 2010. But users were delighted with a million deep spreadsheet. That remains the same.

More formula functions were added to Excel 2010, again, every day users won't notice.

Finally, Excel 2010 is faster at a higher level than Excel 2007. But most of us won't see the difference.

What remains the same?

Ultimately, the power of Excel is found in its formula functions. The ingenuity of Excel is found in its pivot tables, scenario managers, and goal seeks. Elegance is seen in the beautiful charts that you can make.

Finally, as always, you are responsible for the **quality control** of the spreadsheets you build and present. Microsoft Word may have spell checkers and grammar checkers, but Excel never has had a global "does this spreadsheet make sense" feature. You are responsible for your Q.C.

### III. What's the Secret to Excel?

What is **inheritance**? What do you do when you “inherit” someone’s Excel spreadsheet mess and you want to understand all the formulas in it? What do you do when you’re new on the job and someone gives you his/her Excel spreadsheet? How can you understand an inherited spreadsheet immediately?

What’s wrong with the spreadsheet shown below?

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	My Family Budget														
2															
3			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
4	Revenue														
5		Salary	3000	3000	3000	3000	3000	3300	3300	3300	3300	3300	3300	3300	
6		S.O.	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600	2600	
7		Stock Dividend			150			150			150			150	
8	Sub-Total		5600	5600	5600	5600	5600	5900	5900	5900	5900	5900	5900	5900	69300

**There is a secret to Excel that displays all of your formulas not as numbers but as logic.** It’s buried in menu structure somewhere but there’s a keystroke that reveals everything. What is that keystroke?

Use the **ExcelLearningFile.xls** file and the sheet named **Secret to Excel**.

Think about it for a while or research it. If you just want to know now, turn the page.

## The Secret to Excel

is on the next page.

## CTRL ` is the answer.

Hold down the **CTRL** key with your left thumb. Tap the ' **key** (called the **grave** key) which is one key to the left of the number 1 key towards the upper left hand corner of your keyboard. Notice what happens.

After using CTRL ` can you find the **error** shown below?

	A	B	C	D	E
1	My Family Budget				
2					
3			Jan	Feb	Mar
4	Revenue				
5		Salary	3000	3000	3000
6		S.O.	2600	2600	2600
7		Stock Dividend			150
8	Sub-Total		=SUM(C5:C6)	=SUM(D5:D6)	=SUM(E5:E6)
9					
10	Expenses				

All **formulas** are now shown as **logical text**, not **numbers**.

**The Error:** The formulas in cells C8, D8, and E8 are incorrect because they don't include Stock Dividend in their sum. Examine cell E8 in both spreadsheets shown above. But all formulas in row 8 need to be changed because all their formulas are incorrect.

To return your formulas to displaying just **numbers** do another **CTRL `** keyboard command. It's a keyboard toggle. Using the **CTRL `** keyboard command, you can understand the logic behind someone else's Excel spreadsheet.

**2007 and 2010 update:**

Jan	Feb	Mar	Apr	May
3000	3000	3000	3000	3000
2600	2600	2600	2600	2600
dend		150		
5600		5600	5600	5600
950				
550				
195				
225				
150				
2070				
3530	3605	3605	3605	3605

It's true, these versions do give us error checking. That's what the green tick marks are all about. **See to the left.** But I can show you many more advanced examples where the green error checking symbol will not save you from bad formulas. Depend on **CTRL `** to display your formulas as logical text.

#### IV. Formulas: “Good” formulas can give bad numbers

It's true. Formulas that seem to work can result in bad, inaccurate numbers. Some people estimate that 20-25 percent of all spreadsheets have errors. It's not just that people want to make errors; it's that they don't understand formulas.

Computers do what they have been programmed to do, not what we want them to do. Here's a classic from my Excel classes that demonstrates this problem.

##### The Problem

Enter the numbers as shown below. Now, in cell A4, build a formula that adds both numbers and divides by 2. This will be **one** cell that does **two** different mathematical operations. Less than 20 % of my students in the classroom get this problem correct.

	A
1	50
2	150
3	
4	[Enter formula here.]
5	

Use the **ExcelLearningFile.xls** file and the sheet named **MDAS Problem**.

The correct answer is 100. Did your formula in cell A4 give you the answer 125? If you got the answer 125 you had a “good” formula that gave you a bad result.

Many clients use the formula **=A1+A2/2** and that's a “good” formula because it gives you a result, but it's logically “incorrect”.

##### What does the formula **=A1+A2/2** mean to Excel?

1. Perform **A2/2** which results in the number **75**.
2. Add cell **A1** to the value **75**.
3. The formula's value is **125**.

So why doesn't Excel do formulas from left to right like we humans expect it to perform? Do you know the answer? Think about it. The answer is on the next page.



### The Answer

“**My Dear Aunt Sally**” is the answer. (The fancy name for this is order of precedence.) Computers **multiply** and **divide** before they **add** and **subtract**. Computers in general and Excel in particular don't do what you expect them to do. Computers behave the way they have been built or programmed to perform. In formulas, MDAS (Multiply Divide before Add Subtract, or “My Dear Aunt Sally”) rules everything.

### The Corrected Formula

So the corrected formula from the previous page would be  **$= (A1 + A2) / 2$**

It will give you the correct answer, the value **100**. Using parentheses ( ) in the formula was the key to doing the formula.

Unfortunately, when it comes to Excel formulas, people sometimes forget to use parentheses, or they use them incorrectly.

### More Advice on Using My Dear Aunt Sally and Parentheses

- If your formula is getting longer and longer, you probably need parentheses.
- If a formula has multiplication/division mixed in with addition/subtraction, you probably need parentheses.
- Parentheses need to be balanced. If you have 3 left parentheses, you need 3 right parentheses.
- If you want to be good with formulas and Excel, referring to a high school algebra book would be helpful.

If you become a student of how parentheses are used in formulas, you and “**My Dear Aunt Sally**” will become good at working with one another.

### Good Formulas Can Produce Seriously Flawed Results

The “My Dear Aunt Sally” problem on the previous page was meant to be easy and obvious so it appears easy and obvious.

One day I was teaching an =VLOOKUP formula to 10 people who see or use that formula frequently. The =VLOOKUP formula is when you compare a short list of data (perhaps 1000 records) to a longer list of records (2000). If there's a match of a record from the short list to the long list you extract data from the long list.

I proved to the client that if misunderstood, the =VLOOKUP formula can look like it's working but produce seriously flawed results. Then the clients began to realize they needed to **re-check** all of their spreadsheets with =VLOOKUP formulas for **possible errors**. The room was very quiet.

## V. Format Techniques Worth Knowing

I could have left these concepts out of this e-book. But I remembered when I showed one of these techniques to a client. She said that it would save her administrative aide **hours** each week.

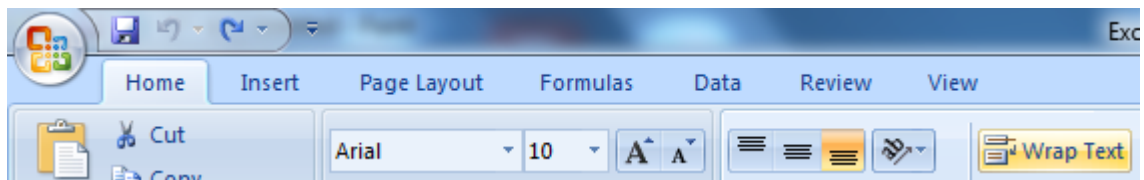
Use the **ExcelLearningFile.xls** file and the sheet named **Wrap Text Problem**.

### Wrap Text

Does the spreadsheet below look like one of your spreadsheets? If your spreadsheet is very wide, with wide columns full of text, how do you make the columns narrower yet still display all the text? The actual spreadsheet had more than the two columns shown below.

3	<b>E-Book</b>	<b>Description</b>
4	Dad's 10 Excel Tips	This book uses question and answer method to teach at ten very important techniques.
5	Excel for Those Who	This book will be about 100 pages long and will include limited email support.
6		

The answer to this problem is a simple formatting technique. First, click on the second column to highlight it. Second, click on Excel's **Home** tab. Third, click the Wrap Text icon in the ribbon.



Then you use your mouse to narrow your columns and to deepen your rows as needed. See the result below.

3	<b>E-Book</b>	<b>Description</b>
4	Dad's 10 Excel Tips	This book uses question and answer method to teach at ten very important techniques.
5	Excel for Those Who	This book will be about 100 pages long and will include limited email support.
6		

## Orientation

If your spreadsheet has columns with narrow data (small numbers) but wide column headers, what's one technique for conserving left to right space? Look at the spreadsheet shown below.

	A	B	C	D
1				
2		Jonathan Schmidt	Harold Stassen	Octavio Muriel
3	Name			
4	Age			
5	City			
6	Years in Troop			

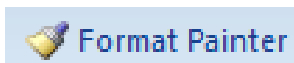
If your spreadsheet has columns with narrow data (small numbers) but wide column headers, **orientation** solves the problem. You highlight the cells that need to be changed. In this example you highlighted the names of youth members in row three. Click the **Home** tab and then the **Alignment** button. Use the **Orientation** controls in the panel to create a vertical label. The snapshot below shows a good solution to the alignment problem.

		Jonathan Schmidt	Harold Stassen	Octavio Muriel	Daemon Miller	Richard Stenark
3	Name					
4	Age					
5	City					
6	Years in Troop					
7						

## Format Painter

Many know this technique, but there are probably just as many who don't.

How do you copy the look of one complex cell (for example a bolded, 14 point high, Arial, red cell) to another cell? It's easy. Click the Excel's **Home** tab. Next, click on the cell that has the format you want to copy, and then click on the **Format Painter** icon shown below. Finally, click on a plain cell. The format of one cell is applied to another cell.



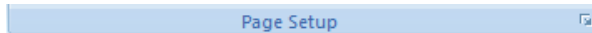
## VI. Printing - A Review, Problems, and a Few New Ideas

Even if you think you know Excel printing, please read on for a few new ideas.

Use the **ExcelLearningFile.xls** file and the sheet named **Repeating Column Header Problem**.

### The Review

- **Highlight** your data before you print it. (This is a good practice because it makes you realize how wide and how long your spreadsheet will print.)
- Click the **Page Layout** tab, then the **Page Setup** feature on the right side.



- In the **Print Preview** window use, **Page Setup** to adjust your print settings.

### A Few Common Problems

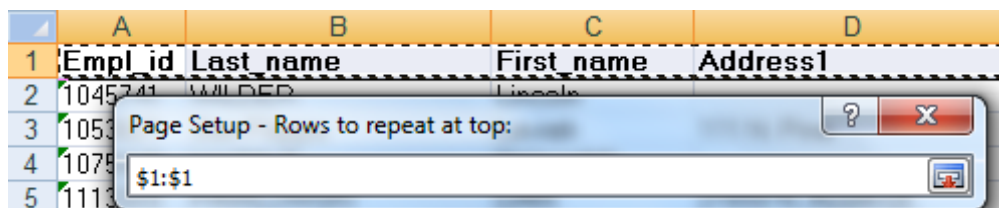
**“My gridlines are gone?”** If your gridlines display when viewing the spreadsheet but don't display when print previewing, do **not** use borders to create fake gridlines.

1. Click **Page Layout**,
2. Click **Page Setup** and then the **Sheet** tab.
3. Checkmark the **Gridlines** box to display gridlines for printing.

**“How do I print a long spreadsheet and keep the column headers at the top of every page?”** This is a classic problem. Here's the solution.

1. Return to **Page Setup**.
2. Click the **Sheet** tab.
3. Locate the **Rows to repeat at top** feature on the **Sheet** tab.

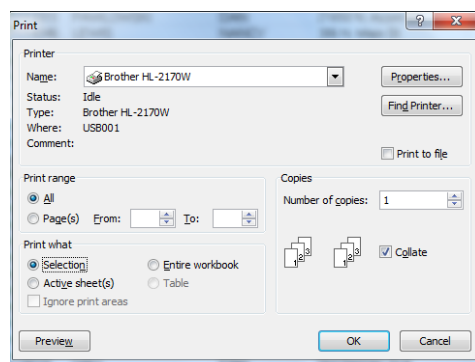
Finally, click the **selector** to the right of that field. It will take you back to the spreadsheet. Then click the column header row. *Make sure you click the row selector tile (it's gray) and not simply a cell.* Then click the **red collapse icon** to return to the **Page Setup** sheet. It will look like the one below.



Then you click the **Print Preview** button to look at your work. You should see that your column headers are repeating at the top of every page.

**“How do I print multiple ranges at the same time?”** One way is to highlight two or more different ranges at the same time. You do this with **CTRL** selection techniques (described more fully in the charting chapter). After highlighting multiple ranges, follow these steps.

1. Click the Excel **Office Button**.
2. Click the **Print** menu choice, and then click **Print** again.
3. Click the **Selection** radio button (see below, near bottom left).
4. Finally, click the **OK** button to print your multiple ranges.

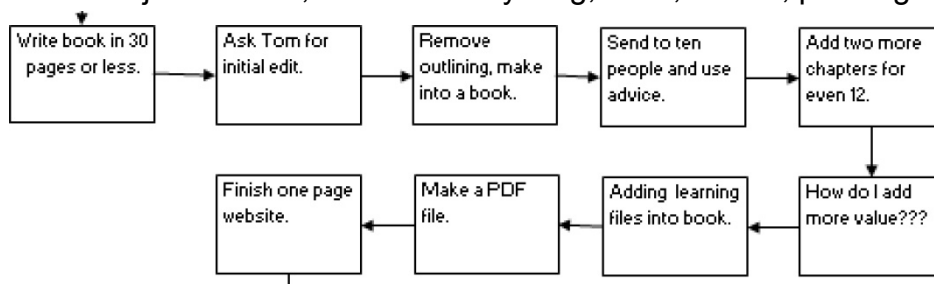


## Idea Mapping

View the **ExcelLearningFile.xls** file and the sheet named **Idea Mapping**. It's an example of flowcharting within Excel. Here you can build your own.

1. Begin with a new worksheet and click the Excel **Office Button**.
2. Click **Excel Options**.
3. Click the **Advanced** choice on the left and find **Display Options for this spreadsheet**.
4. De-select the **Show gridlines** checkbox (this affects only one worksheet).

Then click the **Insert** tab, click the **Shapes** icon, and the **Flowchart** choice. Build your flowchart with the **Flowchart** symbols and connect them with the **Lines** objects. Draw, connect everything, think, dream, plan big.



## VII. Date Math – How old are you exactly?

How long has someone been a client? How old are your receivables? How old is the patient? Once you understand date math you are definitely becoming an intermediate Excel user.

Use the **ExcelLearningFile.xls** file and the sheet named **Date Problem**.

Let's start by asking, how old are you today? How old are exactly, down to the one-hundredth of a year? Why do we need such precision? When you are analyzing hundreds of receivables, patients, inventory, anything, you will need such precision.

If you've never done this before, it may take you a while to solve this problem.

Here's one hint: Every number is a date. And every date is a number.

Here's a second hint: Excel has a built in date timeline. Today is a higher number than when you were born.

This sample spreadsheet may help you with your analysis.

	A	B	C	D
1				
2	<b>Today</b>	<b>Date of Birth</b>	<b>Age in Days</b>	<b>Years</b>
3	10/15/2003	4/21/1951		
4				

### Solution

Remember the hint that every number is a date and every date is a number? You can subtract dates just as easily as you can subtract numbers. So, let's look at your spreadsheet hint one more time.

	A	B	C	D
1				
2	<b>Today</b>	<b>Date of Birth</b>	<b>Age in Days</b>	<b>Years</b>
3	10/15/2003	4/21/1951		
4				

Many beginners type in Today as a regular date. That's okay if you want the date to stay the same and never change. But every time you open the spreadsheet on a different date, cell A3 needs to be re-typed to the current date. Instead, use the formula **=today()**. Then whenever you open this spreadsheet, it gives you today's date. That saves you the trouble of re-entering the date every day. It's a small part of your solution, but not the big part.

In cell B3 you enter your **birthday** in long date format (for example, 4/21/1951).

Calculate the **Age in Days** for cell C3 as the formula **=A3-B3**. That's because Excel has a built in date timetable. Today's date is a larger number than the date from 1951. The result becomes a number (for example 19170) for the person's age in days.

Cell D3 is the formula **=C3/365.25**. When you do this formula you need to calculate for leap years. That's why the value you divided by was 365.25, instead of 365. As of the day I calculated the answer, the person was **52.48** years of age.

	A	B	C	D
1				
2	<b>Today</b>	<b>Date of Birth</b>	<b>Age in Days</b>	<b>Years</b>
3	10/15/2003	4/21/1951	19170	52.4846

Once you understand Excel date math, you'll start looking for new ways to apply it to your business. For instance, you could calculate the age of receivables, the ages of patients, length of projects as a consultant, etc. Understanding date math opens up new possibilities in using Microsoft Excel effectively.

## VIII. Making Sense of Formula Functions

In the classroom I often ask, “How are formula functions like making spaghetti sauce?” I don’t expect anyone to get the answer. But if you’re not that good with Excel formulas, this “spaghetti sauce” analogy will help you understand

Excel formula functions a whole lot better.

Use the **ExcelLearningFile.xls** file and the sheet named **Mortgage Problem**.

### Two Types of Formulas

**Simple formulas.** =A1+A2 would certainly be simple. Any formula that does **not** begin with a function name (for example, =SUM, =AVERAGE, =RAND) could be considered a simple formula. It’s just algebra.

**Formula functions.** You may have already seen or used formula functions like =sum, =average, =count. They have words you understand and their structure is easy to understand. For example, =SUM(A2:A19) would mean sum up the numbers in the range A2 through A19.

Formula functions that don’t sound like English, with cell references, and commas, are more difficult to understand. For example, what does this formula function mean? =PMT(B5/12,B7\*12,B3) **Formula functions like the =PMT function are like making spaghetti sauce.** Why? Read on?

### Formula functions and spaghetti sauce

What does it take to make good spaghetti sauce? Well, you need certain ingredients. Then you need to prepare the ingredients in a certain order (onions and green peppers sautéed first, and then added to the mix). Sometimes you might even refer to a recipe book for guidance.

There are 200-300 formula functions in Excel. (I lost count.) Most of these formula functions require studying the help screens or books to understand what’s going on – like reading a recipe book. If you want to see your choices of functions, issue the menu command **Insert – Function** or just click on your **paste formula** icon.

As a new formula function “chef”, look again at the formula =PMT(B5/12,B7\*12,B3) . =PMT is some type of function so you need to look it up in the help screens. There are three ingredients or **variables** in the formula because they are separated by **commas**. And, two of the variables are being sliced, diced, or **operated** on with a **division** symbol and a **multiplication** symbol.



Cell B9 is the cell we are looking at. You can see its =PMT formula at the top of the snapshot. In fact, It's a **mortgage calculation** based on a loan amount, interest rate, and years length of loan.

	A	B	C	D	E
1					
2					
3	Loan Amt.	280000			
4					
5	Interest	0.05			
6					
7	Years	30			
8					
9	Mortgage	(\$1,503.10)			

An =PMT formula is normally a mortgage calculation and the items in bold from the formula above must exist. Remember our formula: **=PMT(B5/12,B7\*12,B3)**.

- **=PMT** means that this is a mortgage calculation.
- **Rate** means the monthly interest rate for the loan. In this case our interest rate is B5/12 because cell B5 is an annual interest rate and Excel wants a monthly interest rate in the formula. The annual interest rate is divided by 12 to give Excel a monthly interest rate.
- **Nper** means number of payments. Cell B7 is the number of years. Excel wants the number of monthly payments, so multiply B7 times 12.
- **PV** means **present value** or **value of the loan** borrowed for the mortgage. Cell B3 refers to the **loan amount** of the mortgage.

Understanding someone else's formula function is easier than building your own. Make it a habit to write down and learn new formula functions when you see them in use. If you become a student of the Excel spreadsheets of others, you can learn from their good habits in using formula functions.

## IX. Why is =IF so important?

Once you have learned date math and a few simple formula functions, it's time to learn something about the =IF function. I suppose every advanced Excel user has a bias for what is their **favorite** function. For me, the =IF function is a favorite. Why? Because it's a great problem solver.

Use the **ExcelLearningFile.xls** file and the sheet named **=IF Problem**.

Do you have a few hundred rows of data in your spreadsheet? Or perhaps you have a few thousand. How will you find all the customers whose bills are past 30 days due? Or, in the small example below, how will you find your top salesman and reward them with bonuses?

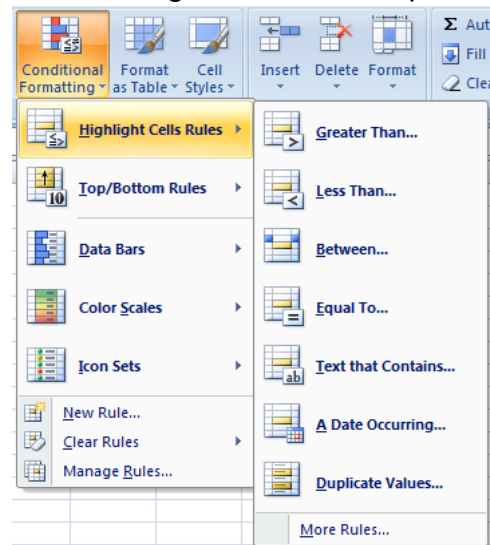
Take a look at the sample spreadsheet shown to the right. Imagine that instead of containing 8 salespeople it lists 800 sales people throughout the country. The sales people selling over 11,000 per month should be complimented or rewarded while the salespeople below 5000 may need more training.

	A	B	C
1			
2			
3	<b>Salesman</b>	<b>Sales</b>	<b>Action</b>
4	Ortiz	10000	
5	Horatio	9345	
6	Langer	4800	
7	Thomas	8942	
8	Jones	3590	
9	Martinez	5945	
10	Deutsch	11543	
11	Latrell	6700	
12			

## Conditional Formatting

If you haven't discovered conditional formatting yet you should look it up in Excel's **help** feature. It formats certain values that are higher, lower, or equal to certain results. First, if you want conditional formatting for a range of cells, highlight those cells. Second, click Excel's **Home** tab. Then click on the **Conditional Formatting** icon and follow your menus to apply highlight cell rules.

Conditional formatting is a great way to go visual. If the value of the cell is too high or too low, the cell appears in red (or whatever color you specify).



## A Simple =IF Example

Even though conditional formatting is nice, you still need to know =IF because it's more powerful than conditional formatting. Conditional formatting makes for pretty formatting, but a well built =IF statement does more. It can generate a text message or perform a formula.

If you research =IF in Excel's help system, you will find this formula:

IF(logical\_test, [value\_if\_true], [value\_if\_false])

## Explanation

=IF is normally used to analyze numbers or formulas. =IF can generate another number or generate text. Here's a detailed explanation of the formula itself:

**IF(you are analyzing a cell for a certain type of value, if the cell has that number then you do something as a true operation, if the cell does not have that number then you do something as a false operation).**

## Generating Text Using =IF

In the snapshot below, in cell C4 we are building an =IF formula for analyzing cell B4. The formula is meant to work so that If cell B4 is above 11000 in sales the salesperson gets a **bonus**. If it's under 11000 then **no bonus**.

3	Salesman	Sales	Action
4	Ortiz	10000	=if(B4>11000,"Bonus","No Bonus")
5	Horatio	9345	IF(logical_test, [value_if_true], [value_if_false])
6	Langer	4800	

## Result

When I press the **Enter** key the formula creates this result.

Copy the formula downward. When you are satisfied that the formula is correct, then you would copy the formula down where needed on column C.

3	Salesman	Sales	Action
4	Ortiz	10000	No Bonus
5	Horatio	9345	

You can also generate a **value**, not just **text**, when using an =IF statement.

See below for a formula that generates a sales bonus. If the salesperson sells more than \$11,000, he or she receives a 5% bonus based on what they sold.

3	Salesman	Sales	Action
4	Ortiz	10000	=IF(B4>11000,B4*.05,"No Bonus")
5	Horatio	9345	IF(logical_test, [value_if_true], [value_if_false])
6	Langer	4800	

## X. Sheet Tabs – 255 Ways to Succeed

Excel has 3 sheet tabs by default. Potentially, you could set the next spreadsheet to a maximum of **255** sheets. Click the Excel **Office Button**, **Excel Options**, **Popular**, **When creating new workbooks**, and then set sheets to 255. The next Excel spreadsheet you create will have 255 sheets.

Use the **Physician Expense Tracking.xls** file and the sheet named **All Doctors**.

### Three Sheet Tab Concepts

- The basics.
- Replication of sheets (my phrase, Excel doesn't call it that).
- 3-D Formulas. This is when you spear the same cell from all or some of your sheet tabs in the file.

### The Basics

If you right mouse-click any sheet tab at the bottom of your spreadsheet, you can insert, delete, rename, cut and copy a sheet. Using a blank spreadsheet, practice right mouse clicking a sheet tab to learn that skill.

### Replication

I call this replication where I have 10 departments in the same file. Each department has the same types of revenues and expenses, only the actual numbers are different. I also want an 11<sup>th</sup> sheet tab for **Departmental Totals**. How could we use sheet tabs to make this work?

Use the steps at the beginning of this chapter on **Excel Options** to create a spreadsheet with 11 sheets. Click the **OK** button. Then request a **new file** from Excel. The new file will have 11 sheet tabs.

Select all sheets. Right mouse-click any of your blank sheet tabs and issue the command **Select All Sheets**. All eleven of your sheet tabs will now appear at the bottom of your spreadsheet in white (selected).

Now, carefully type and build your spreadsheet. **Whatever you type will appear on every one of your worksheets**. Try it, it works.

**To turn off replication**, just click any one of the bottom sheet tabs. (Sometimes you may need to click an individual spreadsheet and then mouse-click a sheet tab to turn off the selection.) You will know your spreadsheet is back to normal when only one sheet tab appears in white at the bottom of the spreadsheet.

### 3-D Formulas

A multi-sheet spreadsheet allows you to build multi-sheet formulas. Let's say you keep track of 30 physicians and their expenses in a hospital. The snapshot to the right is the Dr. **Jackson** sheet tab.

	A	B	C	D	E
1	<b>Physician Expense Tracking</b>				
2					
3		<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>
4	<b>Salary</b>	7000	7000	7000	
5	<b>Travel</b>	3000	0	0	
6	<b>Seminars</b>	575	0	0	
7					
8	<b>All Expenses</b>	10575	7000	7000	0
9					

In real life there would be many more expenses and many more doctors. The key thing is that you want totals for all doctors.

In real life you would have 31 sheet tabs shown below. But we are only showing the three sheets: two doctors and a total sheet.



Start by spearing your first cell, B4:

Mouse- click the **All Doctors** sheet to make it active. Then click cell B4. You want to total Jan Salary for all 30 doctors (just Jackson and Brown in this demo). In cell B4 type the formula **=SUM(Smith:Brown!B4)** . Press **Enter**. (If this were real and you were tracking doctors Adams through Zenia then the =SUM formula would have the names Adams and Zenia.) See the example below.

	A	B	C	D
1	<b>Physician Expense Tracking</b>			
2				
3		<b>Jan</b>	<b>Feb</b>	<b>Mar</b>
4	<b>Salary</b>	<b>=SUM(Smith:Brown!B4)</b>		
5	<b>Travel</b>			
6	<b>Seminars</b>			
7				
8	<b>All Expenses</b>			

**Use Copy.** If spearing works on one cell, they will all work. Just copy the formula of cell B4 to any other cell in the **All Doctors** sheet tab. Try it. It works.

**Example.** If you need help, just study cell B8. It's a 3-D formula.

## XI. Understanding Pivot Tables

A pivot table is a hybrid software technique that's part spreadsheet and part database. When managers see a pivot table for the first time, they want their staff to build one for them. (If the phrase pivot table is new to you, you can find more information in Excel's help system.)

Use the **Sales Pivot Table, 2011.xls** file and the sheet named **Pivot Table Problem**.

What does a pivot table look like? Let's take a look at a simple database in Excel and then process the data as a pivot table.

Here's the **BEFORE** picture of a sales spreadsheet before it's been processed or re-done as a pivot table. A manager might ask for sales totals by customers. Or maybe a manager wants to see sales by product and then by salesperson. In an effort to please their manager, users may sort, count, do anything they can to give the manager what they want.

	A	B	C	D	E
1					
2					
3					
4	<b>Salesman</b>	<b>Product</b>	<b>Customer</b>	<b>Sales</b>	
5	Smith	Computers	ABC Company	10501	
6	Jackson	Software	XYZ Inc.	12309	
7	Denhali	Printers	The Big Customer	39013	
8	Cortez	Cell Phones	State of Illinois	2215	
9	Jorgenson	PDA's	City of Chicago	9742	
10	Jackson	Computers	XYZ Inc.	2222	
11	Denhali	Software	The Big Customer	9894	
12	Smith	Printers	State of Illinois	19422	
13	Denhali	Cell Phones	Chuck's Warehouse	123	
14	Cortez	PDA's	The Big Customer	4802	
15	Cortez	Printers	State of Illinois	2952	
16	Denhali	Cell Phones	XYZ Inc.	4098	
17	Cortez	PDA's	The Big Customer	5587	
18	Jorgenson	Computers	Kristin's Boutique	9412	
19	Jackson	Software	Kosta's Emporium	2430	
20	Denhali	PDA's	Cook County	1974	
21					

Here's the **AFTER** picture when the data has been processed or re-done as a **pivot table**. The tiles **Customer**, **Product**, and **Salesman** are *moveable* to give you different views or perspectives on the data.

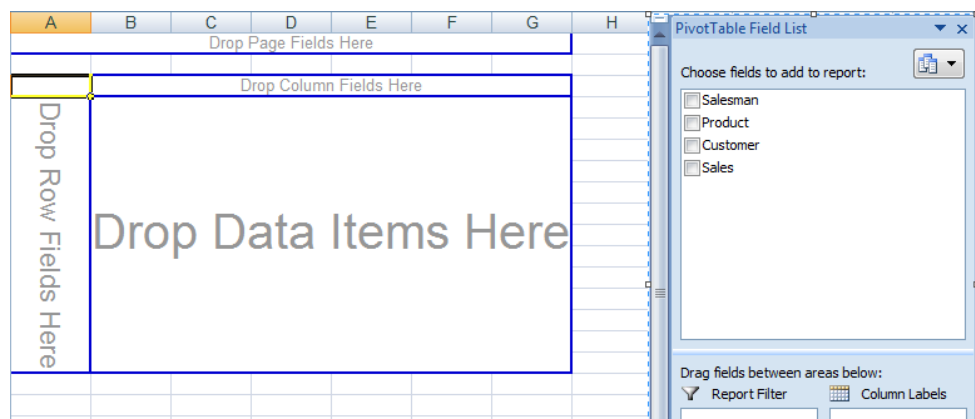
	A	B	C	D	E	F	G
1							
2	Customer	(All) ▼					
3							
4	Sum of Sales	Salesman ▼					
5	Product ▼	Cortez	Denhali	Jackson	Jorgenson	Smith	Grand Total
6	Cell Phones	2215	4221				6436
7	Computers			2222	9412	10501	22135
8	PDA's	10389	1974		9742		22105
9	Printers	2952	39013			19422	61387
10	Software		9894	14739			24633
11	Grand Total	15556	55102	16961	19154	29923	136696

## How do I build a pivot table?

I can't teach you everything about how to build a pivot table in one page. After all, some people have built careers out of using pivot tables. But, I can give you some advice to experiment with and to use.

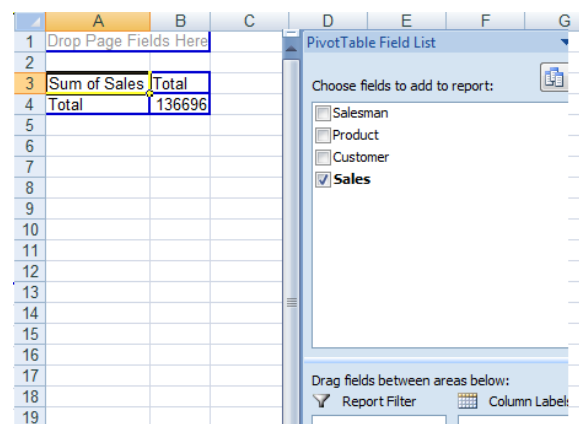
Click anywhere in your sales database. Click **Insert** on the ribbon, **PivotTable** icon, and **PivotTable**. You will then see the **CreatePivot Table** panel:

- Verify that **Select a table or range** radio button is already highlighted.
- Verify that the **New Worksheet** radio button is highlighted.



(Please note that in the snapshots above and below, there is normally a wide space between the **Drop Data** and **Field List**. I made the space fit this page.)

With your mouse, drag the **Sales** tile from the **PivotTable Field List** on the right into the big area that says **Drop Data Items Here**. I always drag the numerical field **FIRST** into the big blue area. Excel will then look like the screen at the right. Don't panic. Drag the **Salesman** tile into the **Drop Page Fields Here** area. Drag the **Product** and **Customer** tiles into the same area. You're done.



Refer to the previous page to see your finished pivot table. With your finished pivot table, experiment moving the different **Salesman**, **Product**, and **Customer** tiles to different positions. The data will stay the same, but **how** you see the data changes.



## XII. Excel Charting: Three Powerful Concepts

**Bad news. I believe charting in Excel 2007 and Excel 2010 are harder to use than previous version. Why? Excel no longer uses the Chart Wizard.**

Use the **ExcelLearningFile.xls** file and the sheet named **Adjacent Charting Problem**.

**Three concepts to better Excel charting.**

- **Adjacency.** When the data you wish to chart is all together in one rectangle or range.
- **Non-adjacency.** When your data is scattered in two or more ranges.
- **Customizing.** When you just want to make your charts look better.

**Adjacency.**

When all your data for charting is together in one range, charting is very easy. First, highlight the range you want for a chart. Second, click the **Insert** tab. Third, click the **Column** icon for a column chart. Lastly, click the **chart type** you want (for example, column charts or pie charts).

	A	B	C	D	E	F
1						
2						
3						
4		January	February	March	Total	
5	Rent	1750	1000	1050	\$3,800.00	
6	Car	150	250	300	\$ 700.00	
7	Telephone	65	90	125	\$ 280.00	
8	Electric	75	85	100	\$ 260.00	
9	Total	\$2,040.00	\$1,425.00	\$1,575.00	\$5,040.00	
10						

**Note:** The key to charting in Excel is knowing what data to highlight. It does take practice. Begin with simple charts of adjacent data. Then you can try to experiment with non-adjacent ranges.

**Non-Adjacency.**

Many good Excel users don't know that they can highlight two or more different ranges for charting purposes. See below.

	A	B	C	D	E
1	My Family Budget				
2					
3		Jan	Feb	Mar	Apr
4	Revenue				
5	Salary	5200	3200	3200	3000
6	Spouse	1750	1750	1750	2600
7	Stocks	250		150	
8	Sub Total	7200	4950	5100	5600
9					

**Note:** If you had highlighted A3:D7, your resulting chart would have looked confusing.



### Non-Adjacency (continued)

To highlight two or more different ranges use the **CTRL** keystroke. To highlight the **non-adjacent range** (shown on the previous page), follow these steps.

- Use the mouse and click on cell A3.
- Hold down the Shift key. Click cell D3. Release the Shift key.
- Your first range is now highlighted.
- Hold down the CTRL key. Click cell A5. Release the CTRL key.
- Hold down the Shift key. Click cell D7. Release the Shift key.
- Your second range is now highlighted.

You have successfully highlighted your range. Now, as explained on the previous page, click the **Insert** tab, **Column** icon, and then select a **chart type**.

### Customizing

I recommend simply **right mouse clicking** a chart object (a column, a grid line, a title) to find out how to customize it.

### More Notes on Excel Charting

- **Automatic?** Excel charting seems automatic. It's not. If you build a chart, ask a co-worker if the chart makes sense to them.
- **Data selection is the key.** Think about what chart you want and then select the data range properly before you click any icons.
- **Dynamic.** Change a number and the chart changes. Change the height of a column, and the number changes.
- **Pie charts are different.** You cannot do a pie chart of multiple expenses over multiple months. Pie charts are different than bar charts.
- **Name your charts.** For complex data charting, put the **data** on one sheet tab and the **chart** on another sheet tab. It's a good method.
- **F11 is fun.** When you highlight your data you can press the F11 key to get an instant chart on its own sheet tab.

### OLE – Object Linking and Embedding is powerful.

**Problem.** If you build Excel charts you will probably paste those charts into Word or PowerPoint. But then people change their Excel data and the chart changes. Then they need to re-paste the new charts into Word or PowerPoint.

**Solution.** Use **OLE** (Object Linking and Embedding). Do **not** paste your charts into Word or PowerPoint. Use **Paste Special** to **paste link** your chart into Word or PowerPoint. When the Excel data changes, it will update the target file.

### XIII. The Tools Menu and Goal Seek

**Before Excel 2007/2010, you could click on the Tools menu to find advanced features all in one place. Although the Tools menu is gone, Excel still has the power to do spelling, goal seeks, and more.**

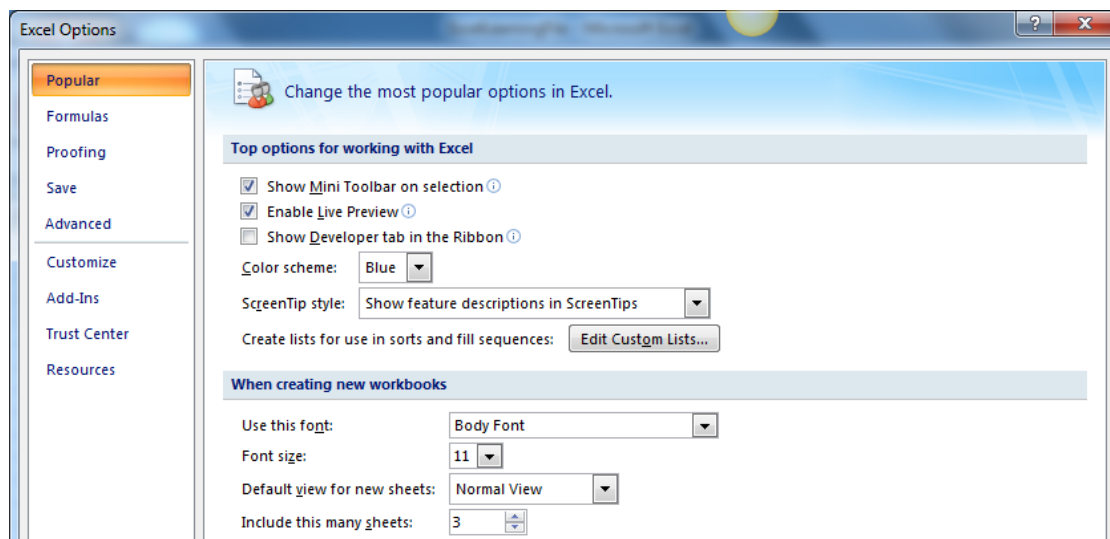
**Spelling** – Click the **Review** tab, then click the **Spelling** icon on the ribbon. If you have spelling mistakes in your spreadsheet, will anyone trust the accuracy of your numbers and formulas?

**Scenarios** – Click the **Data** tab, then click **What If Analysis** on the ribbon. This is a way to create worst/average/best case scenarios. With the click of a button you can switch from worst case to best case. (Sales personnel should love this feature.)

**Formula Auditing** – Click the **Formula** tab. Then look to the right for Formula Auditing icons. If 20-25 percent of all spreadsheets contain errors (as some researchers believe) why aren't more people using this feature? And don't forget the "Secret to Excel", CTRL `.

**Insert Functions** – Clicking the **Formula** tab displays the **Insert Function** icon on the ribbon. Most Excel users utilize at most ten formula functions. Studying the **Insert Function** feature is a good idea.

**Excel Options** – Clicking the Excel Office Button and then the Excel Options button is worth your time. They were mentioned earlier in this ebook. Study them now to save time and effort later on.



## A Goal Seek Problem to Solve

Use the **ExcelLearningFile.xls** file and the sheet named **Mortgage Answer**.

Do you remember the **=PMT** formula used earlier in this e-book for calculating a home mortgage? (Refer to pages 12 and 13). In that example, if you knew the interest rate, the length of a loan, and the loan amount, you could calculate a mortgage payment (not including taxes and insurance).

Understanding how to do an **=PMT** formula function doesn't answer the classic home buyer's question: **"How expensive a home can I afford to purchase?"**

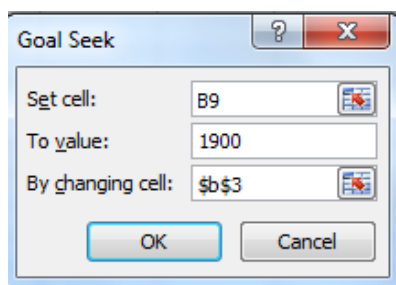
Use the **ExcelLearningFile.xls** file and the sheet named **Mortgage Answer**.

	B9					
1						
2						
3	Loan Amt.	280000				
4						
5	Interest	0.05				
6						
7	Years	30				
8						
9	Mortgage	(\$1,503.10)				

The formula is shown at the top of the snapshot. With a 5% loan over 30 years the home buyer can borrow \$280,000 for a little over \$1500 per month.

If interest rate and loan term stay the same, the buyer is wondering how much they can borrow if the loan payment is \$1900.

**Goal seek** can give you a simple way to solve this type of problem. Click **Data** on the ribbon, **What If** icon, **Goal Seek**. See below.



The Goal Seek dialog box is shown with the following settings:

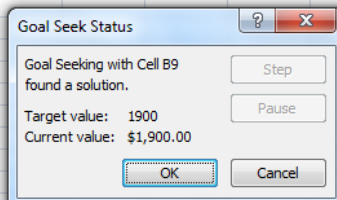
- Set cell:** B9
- To value:** 1900
- By changing cell:** \$B\$3

Buttons: OK, Cancel

You set cell B9 to the value 1900. You allow this to happen by changing cell \$B\$3. You are asking Microsoft Excel to goal seek and determine the loan amount that you can borrow.

You click the OK button to let Excel do the internal calculations.

	A	B	C	D	E	F	G
1							
2							
3	Loan Amt.	-353935.07					
4							
5	Interest	0.05					
6							
7	Years	30					
8							
9	Mortgage	\$1,900.00					
10							
11							



The Goal Seek Status dialog box is shown with the following information:

- Goal Seeking with Cell B9 found a solution.**
- Target value:** 1900
- Current value:** \$1,900.00

Buttons: Step, Pause, OK, Cancel

Excel calculates the new value of cell B3. For a mortgage (principal and interest) of \$1900 you can afford to borrow **\$353,935.07** from a lender. Once you understand the potential of the **goal seek** feature, you will look for all sorts of ways to use it within Microsoft Excel.

#### XIV. The VLOOKUP Formula Function

=VLOOKUP belongs with a family of formula functions named Lookup & Reference. Probably the two most commonly used formula functions in this family are =VLOOKUP and =HLOOKUP. In this section we'll take a look at =VLOOKUP.

There are two main uses of =VLOOKUP: **exact matches** and **approximate matches**. An **exact** match for an =VLOOKUP would be comparing a short list of items with a long list in order to find a match. An example of an **approximate** match for an =VLOOKUP would be using a tax table. You earn a certain income, but it doesn't perfectly match the table you are searching. It's approximate.

Let's take a close look at learning how to use an =VLOOKUP to solve an exact match problem. Here are the business details.

- Whenever there's a sale, you receive a list of items with sales ID's only. No description of the product is given. But you need to know the description of the product because it's too hard to memorize (and you're new at the company).
- Currently, you take the sales order with its 20-30 different products and compare it to a list that's 100 lines long. Although you type pretty quickly, finding the matches is tedious.
- If this problem seems easy to you, be glad you're not in the insurance business. I worked with a client that had to compare a short list of hundreds of items to a long list with thousands of items. They did this once a week, and made errors, and hated the process.
- Let's visualize the problem, see below.

3	<b>Order Number</b>	<b>Item</b>
4	M3	
5	T1	
6	T4	

3	<b>Order Number</b>	<b>Item</b>
4	M1	50 pound bag of concrete
5	M2	100 pound bag of concrete
6	M3	50 pound roll of roofing underlayment
7	M4	100 pound roll of roofing underlayment
8	T1	Hammer
9	T2	Small Hammer
10	T3	Phillips Screwdriver
11	T4	Screwdriver
12	T5	Saw
13	T6	Crosscut Saw

What thousands of Excel users do across the world is manually look up what an M3 sales item happens to be from the right list, then they copy it, then they paste it to the right of M3 on the left spreadsheet. An **M3** sales item is a **50 pound roll of roofing underlayment**. What should they be using? An **=VLOOKUP** formula function would solve the problem.

First, please open the Excel file **VLOOKUP and Sales Orders** which came with your e-book. There are 3 worksheets: **Sales Order Problem**, **Product List**, and **Sales Order Solution**. The solution is obviously the 3<sup>rd</sup> workbook. Don't look at the solution for now.

Before you build your =VLOOKUP formulas in column B of the first worksheet (**Sales List**) you need to do a few housekeeping chores.

- Verify you don't have any duplicated items in the **Product List** worksheet. =VLOOKUP does not work if there are duplicates in this list.
- Sort the **Product List** (2nd workbook) in ascending order. =VLOOKUP can malfunction if sorting isn't done in the lookup table.
- Name the range A4:B13 on the **Product List** workbook. This is done by first highlighting that range. Next, observe the formula bar. Finally, type the range name **allproducts** in the formula bar where you see A3 (see below).



Now, finally, you're ready to build your =VLOOKUP. Go to the first worksheet named **Sales Order Problem**. Click on cell B4 and type in the formula that you see below. Remember, the formula is the =VLOOKUP, the result is the phrase **50 pound roll of roofing underlayment**.

B4      fx    =VLOOKUP(A4,allproducts,2,FALSE)			
	A	B	C
1			
2			
3	<b>Order Number</b>	<b>Item</b>	
4	M3	50 pound roll of roofing underlayment	
5	T1	Hammer	
6	T4	Screwdriver	
7			

So what does the =VLOOKUP formula mean?

- **=VLOOKUP** is how the formula begins.
- **A4** refers to the cell being analyzed.
- **allproducts** refers to the name of the lookup table. It was pre-defined by you. That's why I had you name that range **allproducts**.
- **2** is the column offset. It tells Excel to "return" a phrase from the 2nd column of the named range when a match is found. This was the column with the product descriptions.
- **False** tells Excel that you only want exact matches, not approximations.

Well done. If you need to do an =VLOOKUP for an **approximate match** like a tax table, read the Excel help and use a **True** statement in the formula.

**XV. Your Excel Coach has a Forum – Join Us Today.**

Thank you for purchasing this ebook. It is an honor that you have chosen me as Your Excel Coach.

In 2004 I wrote an ebook named ***The World's Shortest Excel Book*** and marketed it with Google pay per click advertising around the world. My ebook was purchased in 40 countries. It was fun.

But I knew something was missing. I wasn't interacting with my readers, helping them with advice, or teaching them across the Internet.

Seven years have passed and I've returned to the Internet.

Things are different now. WordPress allows me to build a nice website named <http://yourexcelcoach.com/>. I can teach people privately or in webinars over the Internet from Chicago to anywhere in the world using a high speed cable connection.

The biggest change in 2011 is that I can easily build an Excel forum for my paid subscribers to send me questions, get my advice, and share their Excel success stories. Even though I believe my little ebook is a *good* idea, I believe a worldwide community of Excel learners in a forum is a ***great*** idea.

Your purchase of The World's Shortest Excel Book includes your first free month in the Your Excel Coach forum. I hope you visit the forum so that I can coach you to the level of Excel expertise you want for your career. The \$20 fee for the Excel forum is automatically renewed monthly and you can cancel at any time.

Read the ebook, study it on the bus or train to work, practice with it. And please visit Your Excel coach at our forum. Yes, it's our forum together.

Best Wishes from Chicago, IL USA.

Richard Kraneis

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