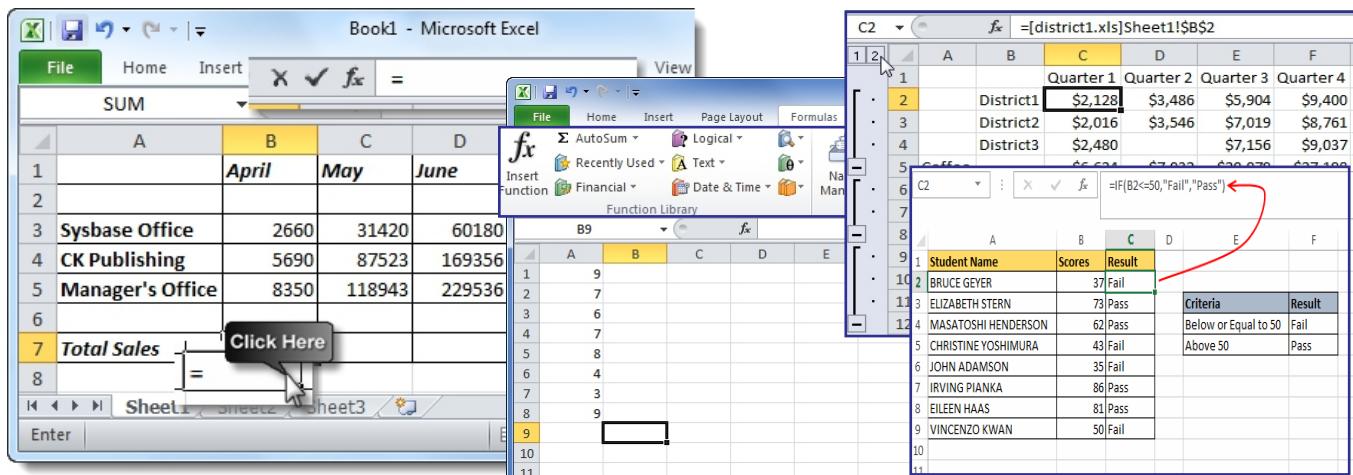


# Lesson 4

## Word Watch

- formulas
- functions
- cell reference
- range
- operator
- reference operators
- arguments
- Autosum



# Formulas and Functions

## Learning Objectives

After completing this lesson, you should be able to:

- explain what formulas and functions are;
- calculate data with formulas and functions;
- create formulas;
- reference absolute and relative cell;
- copy formulas; and
- apply functions.

# Understanding Formulas

Formulas and functions are the real driving force of Excel's spreadsheet capabilities. You can use formulas to perform all kinds of calculations on your Excel data. You can build formulas using mathematical operators, values, and cell references. For example, you can add the contents of a column of monthly sales figures to calculate a total number of sales. If you are new in writing formulas, this section explains all the basics required to build your own formulas in Excel.

## Formula Structure

Ordinarily, when you write a mathematical formula, you will write the values and the operators, followed by an equal sign, such as  $2 + 2 =$ . In Excel, formula structure works a bit differently. All Excel formulas begin with an equal sign (=), such as  $=2+2$ . The equal sign immediately tells Excel to recognize any subsequent data as a formula rather than a regular cell entry.



## Referencing Cells

Although you can enter specific values in your Excel formulas, you can also easily reference data in specific cells. For example, you can add two cells together or multiply the contents of one cell by a value. Every cell in a worksheet has a unique address, also called a cell reference. By default, cells are identified by a specific column letter and row number, so cell D5 identifies the fifth cell down in column D. To help making your worksheets easier to use, you can assign your own unique names to cells. For example, if a cell contains the figure of the total weekly sales, you can name one cell as sales.

## Cell Ranges

A group of related cells in a worksheet is called a range. Cell ranges are identified by their anchor points, the upper left corner of the range and the lower right corner of the range. The range reference includes both anchor points separated by a colon. For example, the range name A1:B3 includes cells A1, A2, A3, B1, B2, and B3. You can also assign unique names to your ranges to make it easier to identify their contents. Range names must start with a letter or underscore and can include uppercase and lowercase letters. Spaces are not allowed in range names.

# Understanding Functions

Excel has a collection of mathematical, financial, statistical and logical functions. If you are looking for a quicker way to enter formulas, you can tap into a wide variety of built-in formulas, called functions. Functions are ready-made formulas that perform a series of operations on a specified range of values. Excel offers over 300 functions you can use to perform mathematical calculations on your worksheet data.



## Function Elements

Functions are formulas, all functions must start with an equal sign (=). It is distinct and each function has a name. For example, the function that sums data is called the SUM function, and the function for averaging values is AVERAGE. You can type functions directly into your worksheet cells or use the Formulas tab of the ribbon. You can also use the Insert Function Wizard or Function Argument dialog boxes to help construct functions. These offer help in selecting and applying functions to your data.



## Constructing Arguments

Functions typically use arguments to indicate the cell addresses upon which you want the function to calculate. Arguments are enclosed in parentheses. When applying a function to individual cells in the worksheet, you can use a comma to separate the cell addresses, such as  $=SUM(A5,B5,C5)$ . When applying a function to a range of cells, you can use a colon to designate the first and last cells in the range, such as  $=SUM(B5:E12)$ . If your range has a name, you can insert the name, such as  $=SUM(Sales)$ .



# Calculating Data with Formulas and Functions

## Mathematical Operators

You can use mathematical operators in Excel to build formulas. Basic operators include the following:

Operator	Operation
+	Addition
-	Subtraction
*	Multiplication
/	Division
%	Percentage
^	Exponentiation
=	Equal to
<	Less than
≤	Less than or equal to
>	Greater than
≥	Greater than or equal to
<>	Not equal to

## Operator Precedence

Excel performs a series of operations from left to right, which gives some operators precedence over others. When you are creating equations, the order of operations determines the results. For example, if you want to determine the average of values in A2, B2, and C2, and you enter the equation **=A2+B2+C2/3**, you will calculate the wrong answer. This is because Excel divides the value in cell C2 by 3, and then adds that result to the A2+B2. Following operator precedence, division takes precedence over addition. The correct way to type the average formula is **=(A2+B2+C2)/3**. By enclosing the values in parentheses, Excel adds the cell values first before dividing the sum by 3. The following table gives order of operator precedence:

<b>First</b>	All operations enclosed in parentheses
<b>Second</b>	Exponential equations
<b>Third</b>	Multiplication and division
<b>Fourth</b>	Addition and subtraction

## Reference Operators

You can use Excel's reference operators to control how a formula groups cells and ranges to perform calculations. For example, if your formula needs to include the cell range D2:D10 and cell E10, you can instruct Excel to evaluate all the data contained in these cells using a reference operator. Your formula might look like this: **=SUM(D2:D10,E10)**.

Operator	Example	Operation
:	=SUM(D3:E12)	<b>Range operator.</b> Evaluates the reference as a single reference, including all the cells in the range from both corners of the reference.
,	=SUM(D3:E12,F3)	<b>Union operator.</b> Evaluates the two references as a single reference.
<b>Spacebar</b>	=SUM(D3:D20 D10:E15)	<b>Intersect operator.</b> Evaluates the cells common to both references.
<b>Spacebar</b>	=SUM(Totals Sales)	<b>Intersect operator.</b> Evaluates the intersecting cell(s) of the column labeled Totals and the row labeled Sales.

## Creating Formulas

You can write a formula to perform a calculation on data in your worksheet cells. All formulas in Excel begin with an equal sign (=). You can reference values in cells by entering the cell name, also called a cell reference. For example, if you want to add the contents of cells C3 and C4 together, your formula would look like this: =C3+C4.

You can create a formula in the Formula bar at the top of the worksheet. Formula results always appear in the cell in which you assign a formula.

### Create Formulas

- 1 Click the cell to which you want to assign a formula.

- 2 Type =.

Excel displays the formula in the Formula bar and in the active cell.

- 3 Click the first cell that you want to reference in the formula.  
Excel inserts the cell reference into the formula.

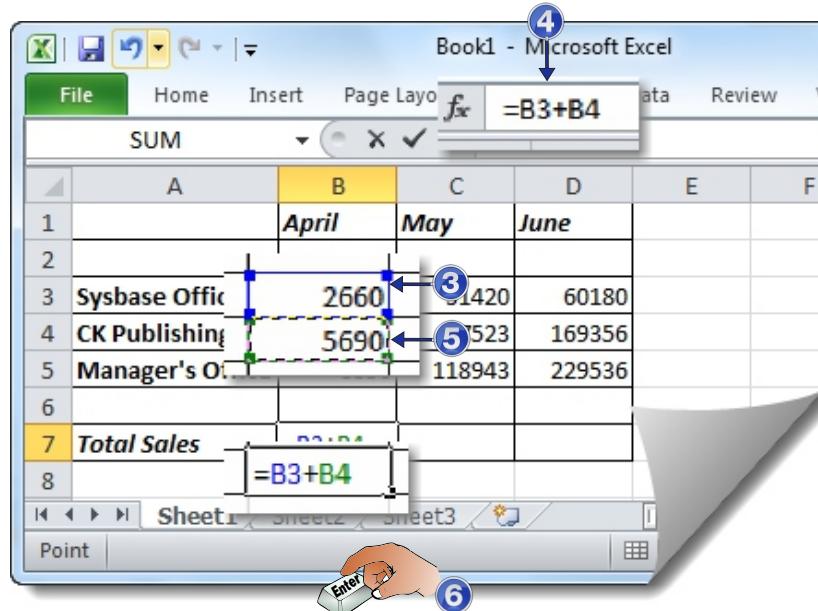
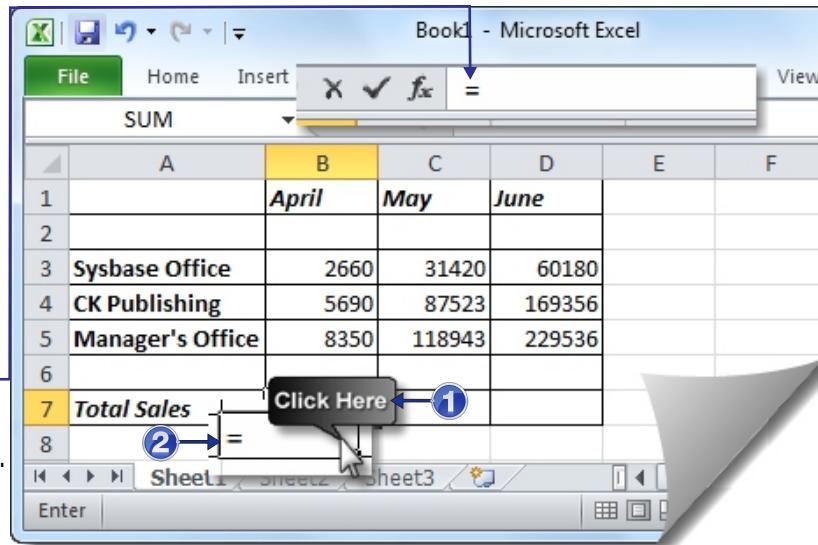
- 4 Type an operator for the formula.

- 5 Click the next cell you want to reference in the formula.  
Excel inserts the cell reference into the formula.

- 6 Press **Enter** to accept your changes.

- You can also click Enter () on the Formula bar to accept changes.
- You can click Cancel () to cancel the formula. The formula results appear in the cell.
- To view the formula, simply click the cell. The Formula bar then displays any formula assigned to the active cell.

Note: If you change any of the values in the cells referenced in your formula, the formula results automatically update to reflect the changes.



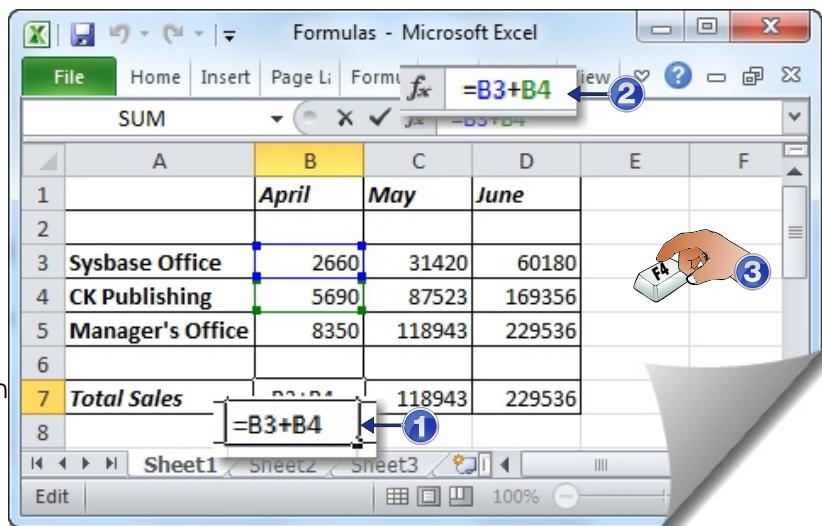
# Referencing Absolute and Relative Cells

By default, Excel treats the cells you include in formulas as relative locations rather than set locations in the worksheet. This is called relative cell referencing. For example, when you copy a formula to a new location, the formula automatically adjusts using relative cell addresses. If you want to address a particular cell location no matter where the formula appears, you can assign an absolute cell reference. Absolute references are preceded with a \$ sign in the formula, such as =\$D\$2+E2.

## Reference Absolute and Relative Cells

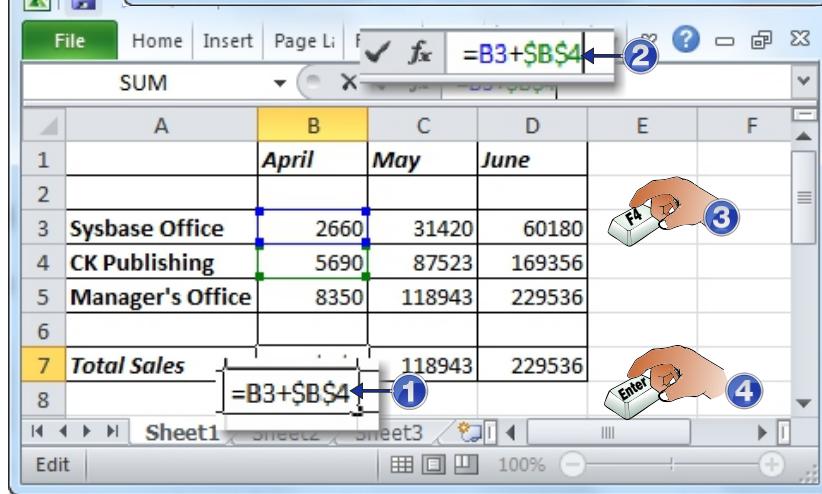
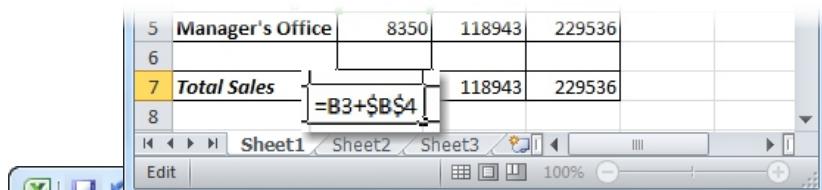
### Assign Absolute References

- 1 Click the cell containing the formula that you want to change.
  - 2 Select the cell reference.
  - 3 Press F4.
    - You can also type in the dollar signs to make a reference absolute.
  - 4 Press Enter or click ✓.
- Excel assigns the changes to the formula.



### Assign Relative References

- 1 Click the cell containing the formula that you want to change.
  - 2 Select the cell reference.
  - 3 Press F4 to cycle to relative addressing.
    - You can press F4 multiple times to cycle through mixed, relative, and absolute references. You can also delete the dollar signs to make a reference relative.
  - 4 Press Enter or click ✓.
- Excel assigns the changes to the formula.



# Copying Formula

You can use Excel's AutoFill feature to quickly copy formulas across rows or columns in your worksheets. If the cell references in a formula are relative, Excel automatically adjusts the formula for the destination cell.

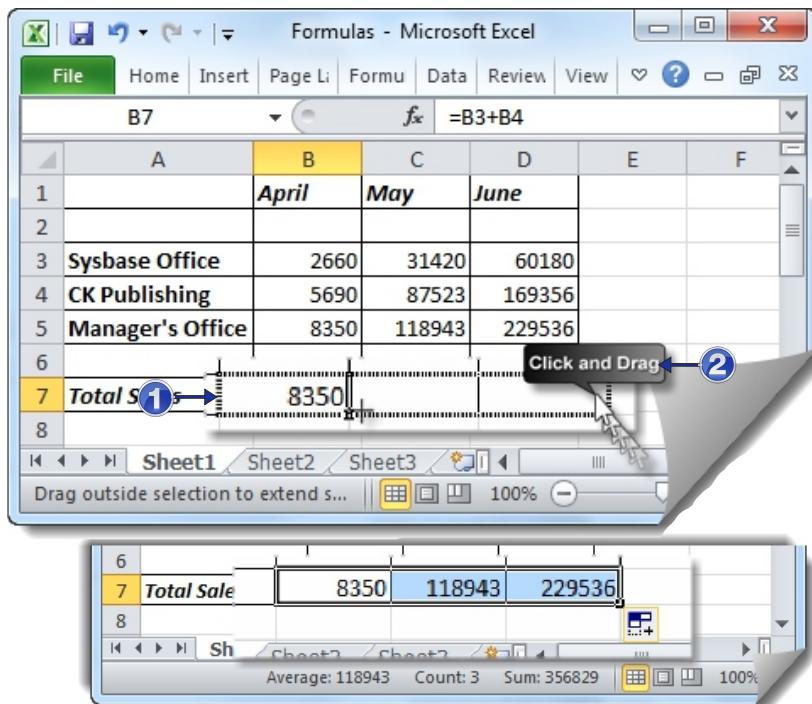
## Copy Formula

### Copy A Relative Formula

- ① Click the cell containing the formula that you want to copy.
- ② Click and drag the cell's fill handle across or down the number of cells to which you want to copy the formula.

Excel copies the formula into each cell you drag over. In the case of relative cell referencing, Excel adjusts the formula relative to each cell into which you copy the formula.

- In this example, the copied formula from cell B7 originally referred to cells in column B, but now refers to cells in column C.

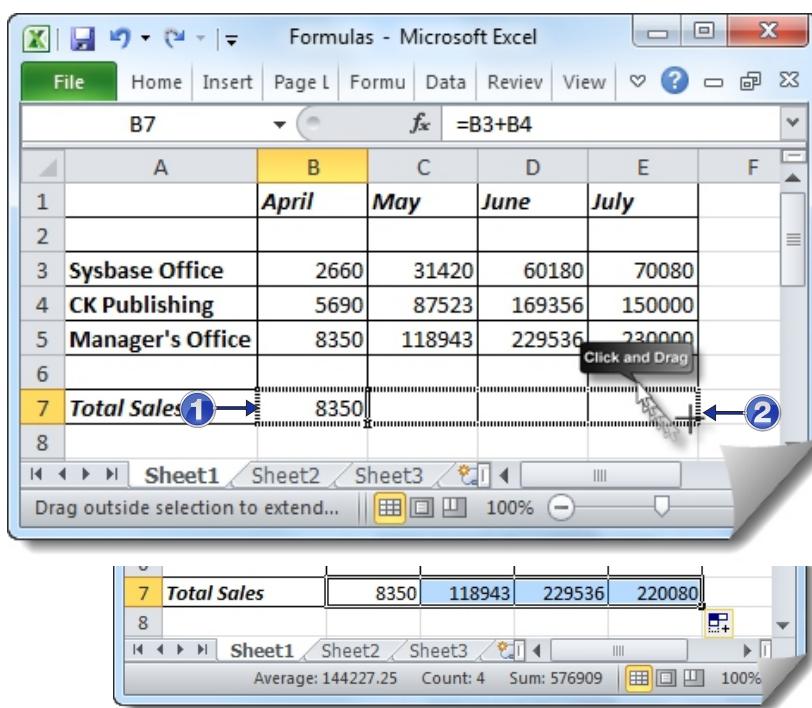


### Copy An Absolute Formula

- ① Click the cell containing the formula that you want to copy.
- ② Click and drag the cell's fill handle across or down the number of cells to which you want to copy the formula.

Excel copies the formula into each cell you drag over. In the case of absolute cell referencing, Excel keeps the absolute cell reference the same regardless of where you copy the formula.

- In this example, the copied formula from cell B16 originally referred to absolute cells in column B, and C14 now references the same absolute cells.



## Common Functions

The table below lists some of the most popular Excel functions you can use with your own spreadsheet work.

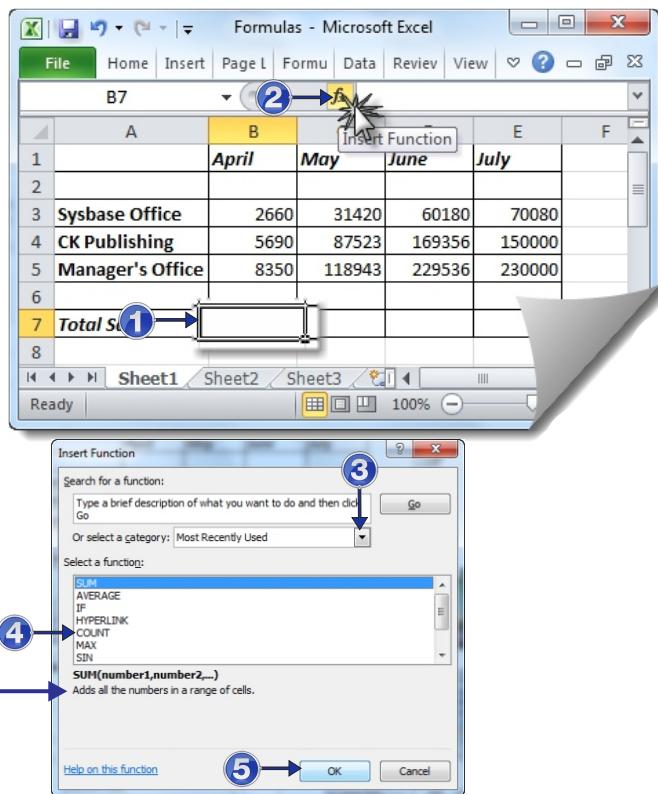
Function	Category	Description	Syntax
SUM	Math & Trig	Adds values	=SUM(number1,number2,...)
ROUND	Math & Trig	Rounds a number specified by the number of digits	=ROUND(number,number_digits)
COUNT	Statistical	Returns a count of text or numbers in a range	=COUNT(value1,value2,...)
AVERAGE	Statistical	Averages a series of arguments	=AVERAGE(number1,number2,...)
MIN	Statistical	Returns the smallest value in a series	=MIN(number1,number2,...)
MAX	Statistical	Returns the largest value in a series	=MAX(number1,number2,...)
MEDIAN	Statistical	Returns the middle value in a series	=MEDIAN(number1,number2,...)
PMT	Financial	Finds the periodic payment for a fixed loan	=PMT(interest_rate,number_of_periods,present_value,future_value,type)
RATE	Financial	Returns an interest rate	=RATE(number_of_periods,payment,present_value,future_value,type,guess)
DAYS360	Date & Time	Returns the number of days between two dates using a 360-day calendar	=DAYS360( )
IF	Logical	Returns one of two results you specify based on whether the value is TRUE or FALSE	=IF(logical_text,value_if_true,value_if_false)
AND	Logical	Returns TRUE if all the arguments are true, and False if any are false	=AND(logical1,logical2,...)
OR	Logical	Returns TRUE if any argument is true and FALSE if all arguments are false	=OR(logical1,logical2,...)

## Applying a Function

Functions are ideal to use to speed up your Excel calculations. You can use the Insert Function dialog box to look for a particular function from among function categories.

### Apply a Function

- 1 Click the cell to which you want to assign a function.
- 2 Click the Insert Function icon ( $\text{fx}$ ) on the Formula bar.
- 3 Click to select a category.
  - Excel's built-in functions are grouped into ten categories.
- 4 Click the function that you want to apply.  
A description of the function appears here.
- 5 Click OK.

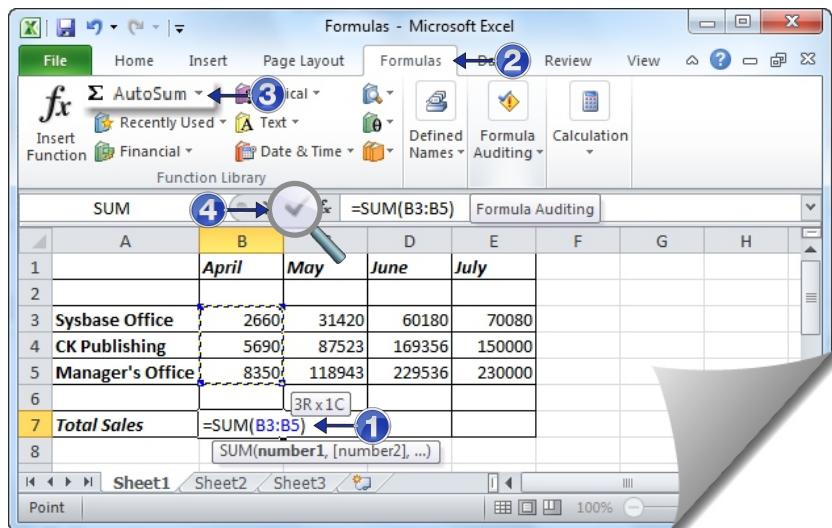


## Applying AutoSum Function

One of Excel's popular functions available is the AutoSum function. AutoSum automatically totals the contents of cells. For example, you can quickly total a column of sales figures quickly. AutoSum works by guessing which surrounding cells you want to total, or you can specify exactly which cells to sum.

### Apply Autosum Function

- 1 Click in the cell where you want to insert a sum total.
- 2 Click the Formula tab.
- 3 Click AutoSum.  
AutoSum immediately attempts to total the adjacent cells.
  - To sum another range of cells instead of AutoSum's guess, select the cells that you want to include in the sum.
- 4 Press **Enter** or click .
  - Excel totals the selected cells.

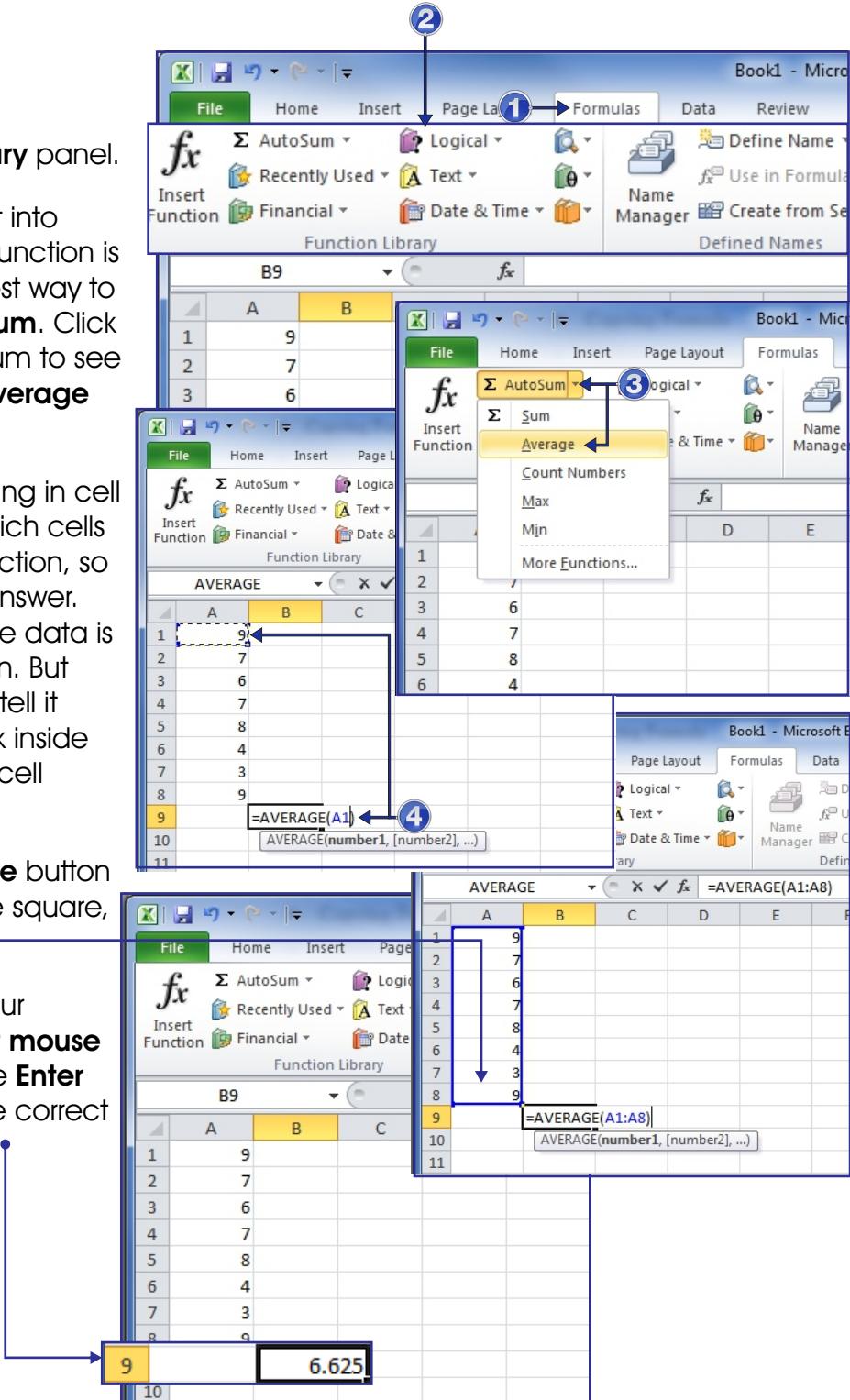


# The Average Function

In Excel, there is an easy way to calculate the average of some numbers just use the built-in Average function. If you're trying to work out an average, you're trying to calculate what the most common value is.

## The Average Function

- 1 Click the **Formulas Tab**
- 2 Locate the **Function Library** panel.
- 3 In Excel, functions are split into categories. The Average function is in a few places. The easiest way to use Average is with **AutoSum**. Click the down arrow on AutoSum to see the following. Now click **Average** from the menu
- 4 Because the answer is going in cell **B9**, Excel doesn't know which cells you want to use in the function, so it can't give you a quick answer. **AutoSum** is good when the data is in the same row or column. But when it's not, you have to tell it what to calculate. So click inside cell **A1** and you'll see the cell selected.
- 5 Hold down your **left mouse** button over the bottom right blue square, and drag to cell **A8**:
- 6 Excel fills in the cells for your function. Let go of the **left mouse** button, and then press the **Enter key** on your keyboard. The correct answer is place in cell **B9**:



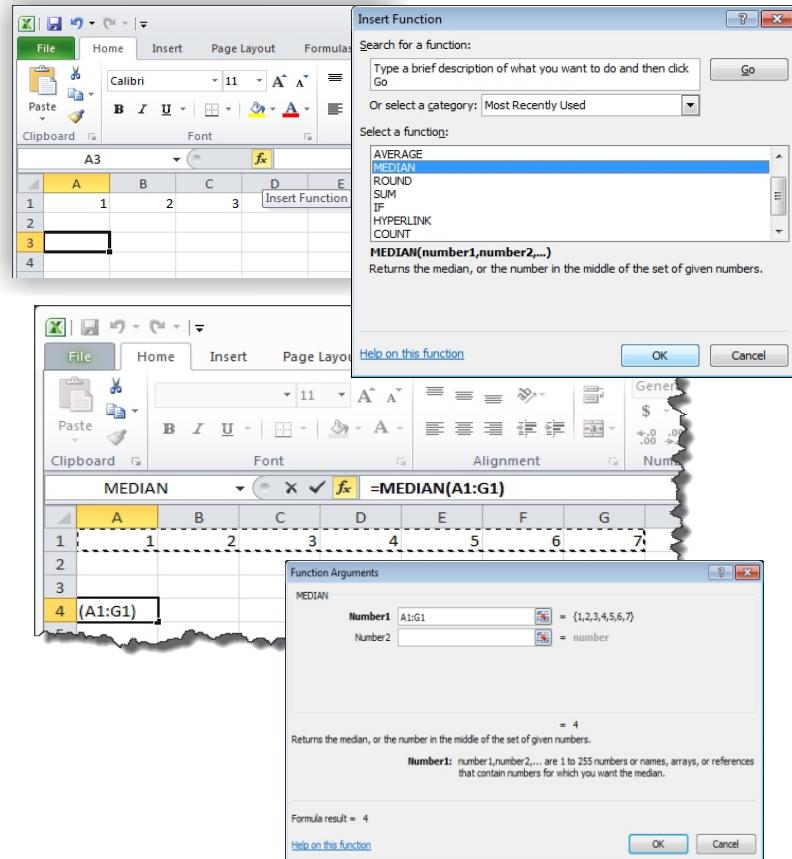
# Median and Mode & Min and Max Functions in Excel

Useful functions such as Median, Mode, Min and Max functions are easy to use in Excel. It's standard format is to highlight the range of cells that you want to manipulate in order to get the result in each of functions mentioned.

## Median

To find the median (or middle number), use the MEDIAN function.

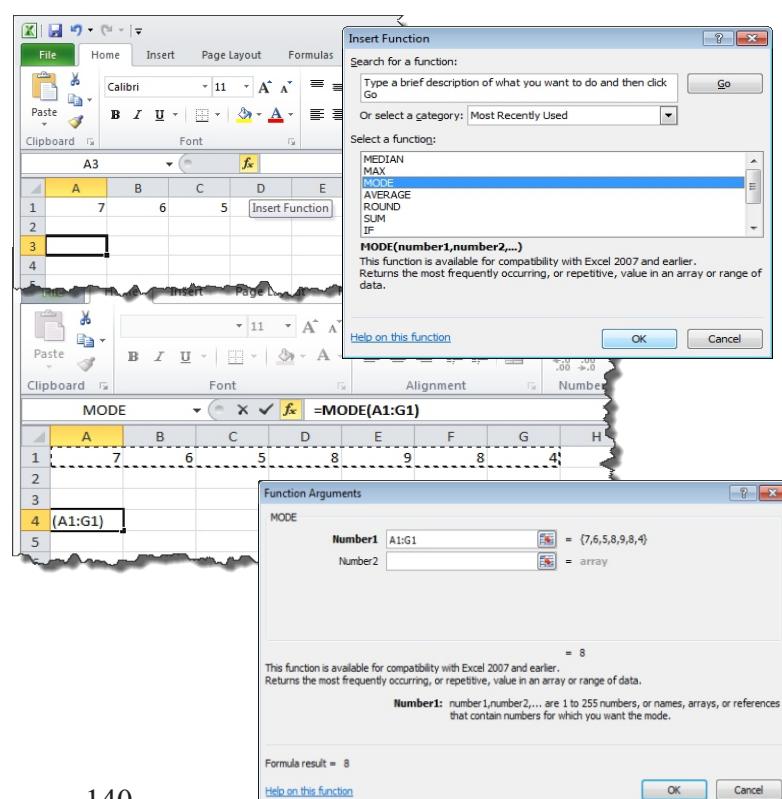
- ① Click the **Formulas Tab**
- ② Click the **Function Library** panel.
- ③ Locate for **Median Function**. Click OK.
- ④ Type **A1:G1** and click Ok, or press SHIFT button on your keyboard and click each cells where you want to find the median. Click OK
- ⑤ The answer will be placed on the active cell.



## Mode

To find the most frequently occurring number, use the MODE function.

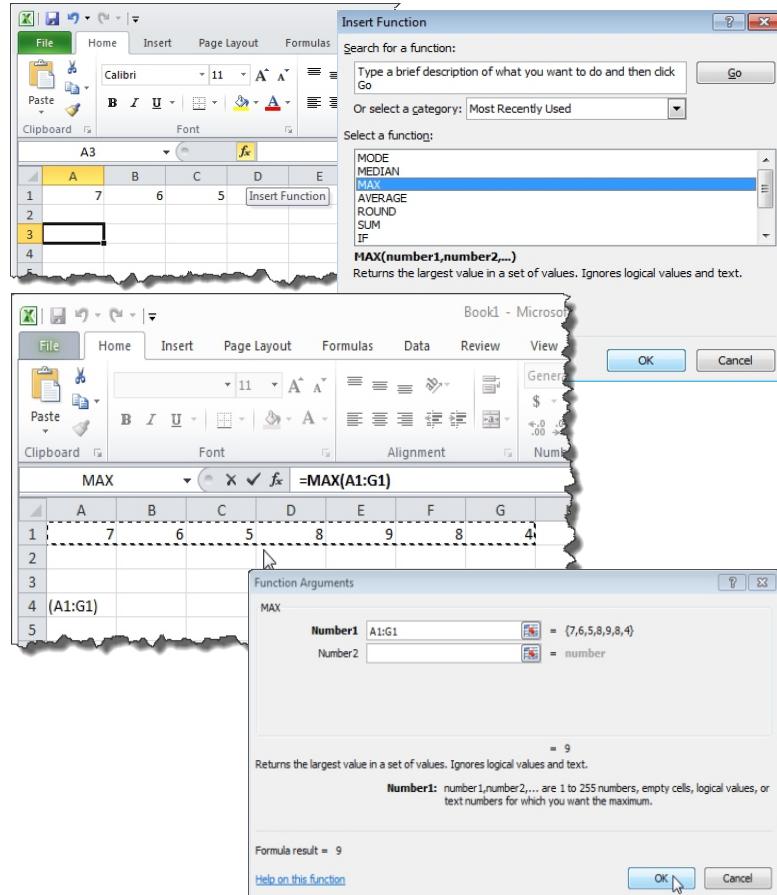
- ① Click the **Formulas Tab**
- ② Click the **Function Library** panel.
- ③ Locate for **Mode Function**. Click OK.
- ④ Type **A1:G1** and click Ok, or press SHIFT button on your keyboard and click each cells where you want to find the Mode. Click OK
- ⑤ The answer will be placed on the active cell.



## Max

To find the maximum/highest value, use the MAX function.

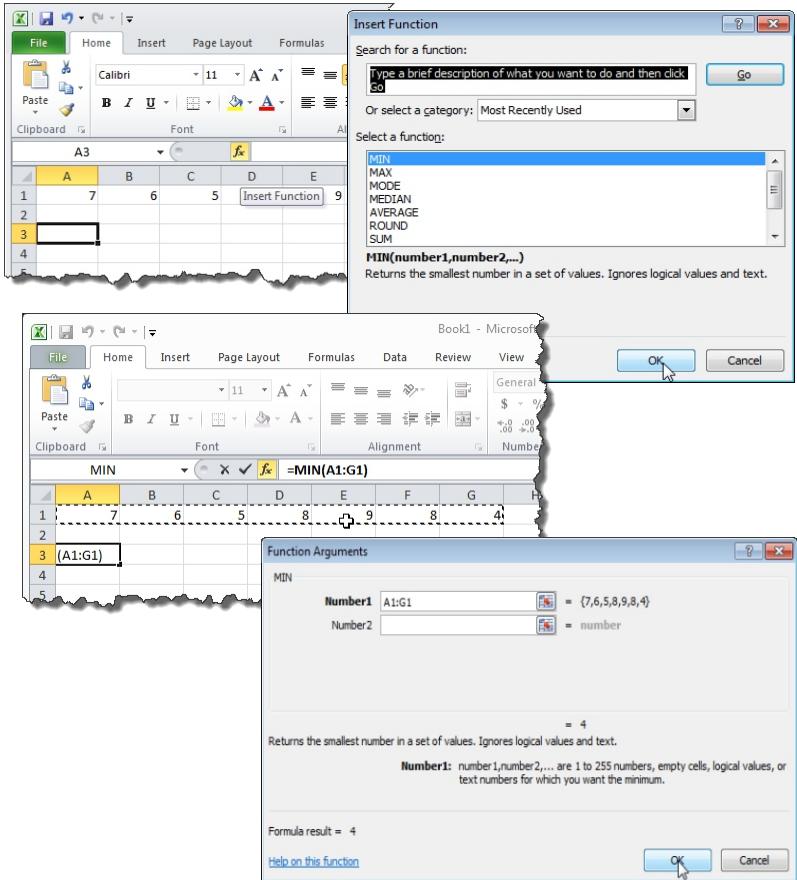
- ① Click the **Formulas Tab**
- ② Click the **Function Library** panel.
- ③ Locate for **Max Function**. Click OK.
- ④ Type **A1:G1** and click Ok, or press SHIFT button on your keyboard and click each cells where you want to find the Max. Click OK
- ⑤ The answer will be placed on the active cell.



## Min

To find the minimum/lowest value, use the MIN function.

- ① Click the **Formulas Tab**
- ② Click the **Function Library** panel.
- ③ Locate for **Min Function**. Click OK.
- ④ Type **A1:G1** and click Ok, or press SHIFT button on your keyboard and click each cells where you want to find the Min. Click OK
- ⑤ The answer will be placed on the active cell.



## The Round Function

Rounding numbers in Excel can be accomplished using a number of different functions.

- 1 Round a number to two decimal places.

Note: 1, 2, 3, and 4 get rounded down. 5, 6, 7, 8, and 9 get rounded up.

In this example, 114.7211, 114.7221, 114.7231 and 114.7241 get rounded down to 114.72 and 114.7251, 114.7261, 114.7271, 114.7281 and 114.7291 get rounded up to 114.73.

B1	f <sub>x</sub>	=ROUND(A1,2)	C	D
1	114.7261	114.73	1	
2				
3				

- 2 Round a number to one decimal place.

B1	f <sub>x</sub>	=ROUND(A1,1)	C	D
1	114.7261	114.7	2	
2				
3				

- 3 Round a number to the nearest integer.

B1	f <sub>x</sub>	=ROUND(A1,0)	C	D
1	114.7261	115	3	
2				
3				

- 4 Round a number to the nearest 10.

B1	f <sub>x</sub>	=ROUND(A1,-1)	C	D
1	114.7261	110	4	
2				
3				

- 5 Round a number to the nearest 100.

B1	f <sub>x</sub>	=ROUND(A1,-2)	C	D
1	114.7261	100	5	
2				
3				

# The If Function

The IF ( ) function is one of Excel's super functions. It is a fundamental building-block of Excel formulas. The "IF" function (sometimes called: "IF statement") is composed of three parts separated by commas: A condition, what to display if the condition is met, and what to display if the condition is not met.

## Building the IF function step by step:

- ① Select the cell in which you want the **IF** function to be.
- ② Type the following code: =if( then move to the cell that you want to evaluate.
- ③ Type the condition and followed by a comma.
- ④ Type the text or number you want display if the condition is met (if it is text, then put the text within quotation marks).
- ⑤ Type a **comma** and followed by the text or number if the condition is not met.
- ⑥ Close the bracket and press the **[Enter]** key.
- ⑦ Now copy the first result to the rest of the cells by dragging down the corner of the first cell to duplicate the formula/function.

The figure consists of four screenshots of an Excel spreadsheet illustrating the creation of an IF function. In the first screenshot, the user has selected cell C2 and opened the formula bar, which shows the beginning of the formula: '=IF('. In the second screenshot, the user has typed 'B2<=50' as the condition and ',"Fail"' as the value\_if\_true part of the formula. In the third screenshot, the user has completed the formula with a closing parenthesis and pressed Enter, resulting in the value 'Fail' appearing in cell C2. In the fourth screenshot, the user has selected cell C2 again and used the fill handle to drag down to cell C10, applying the formula to all rows, which results in the values 'Fail' through 'Pass' appearing in cells C2 through C10 respectively.

A	B	C
1	Student Name	Scores
2	Angelika Santos	37
3	Dean Escarda	73
4	Frances Jabiguer	62
5	Harold Pestano	43
6	Kyle Neri	
7	Kyleen Fabiana	
8	Ruben Diaz	
9	Zyra Mercado	
10		

## Function Examples

=if(B5>50000,"too expensive","let's buy it")

In words: If the value of cell B5 is greater than 50,000 then show the words "too expensive", otherwise show the words "let's buy it".

=if(A6="Monday","Back to work","Stay at vacation")

In words: If the value of cell A6 is the word "Monday" then show the words "Back to work", else show the words "Stay at vacation".

=if(B2="Jermey","A great kid","","")

In words: If the value of cell B2 is the word "Jermey" then show the words "A great kid", otherwise leave the cell empty.

# The VLookup and Hlookup Functions

Microsoft Excel lookup is a function that searches for values in a column or row of a spreadsheet list or table. The **V** in **VLOOKUP** stands for vertical (column) while the **H** in **HLOOKUP** is for horizontal (row). When performing a **Vlookup**, each match returns the corresponding value on the same row in the next column. For example, when looking up a number in a phone book you read down the list of names until you find the name and then move your finger to the right to find the associated phone number.

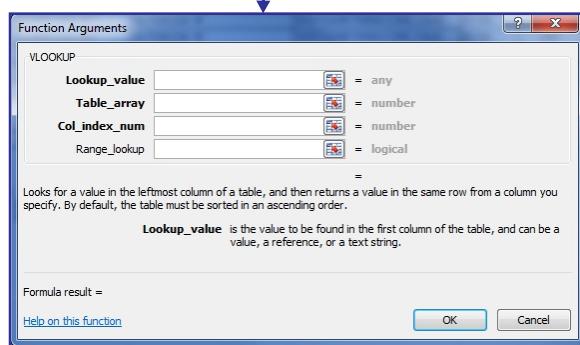
The syntax or format for Vlookup and Hlookup function are:

**VLOOKUP(** lookup\_value, table\_array, col\_index\_num, [range\_lookup] **)**  
**HLOOKUP(** lookup\_value, table\_array, row\_index\_num, [range\_lookup] **)**

## Applying Vlookup

- ① We want to look up for the item description for the code highlighted. The cell **A17**
- ② The next step is to select the cell where we want the information we retrieve using **VLOOKUP** to be stored. **B17** in this case
- ③ Next go to the **Formulas** tab and click, **Insert Function**.
- ④ Now select a category '**Lookup and Reference**', and then Select the function "**VLOOKUP**" from the list.

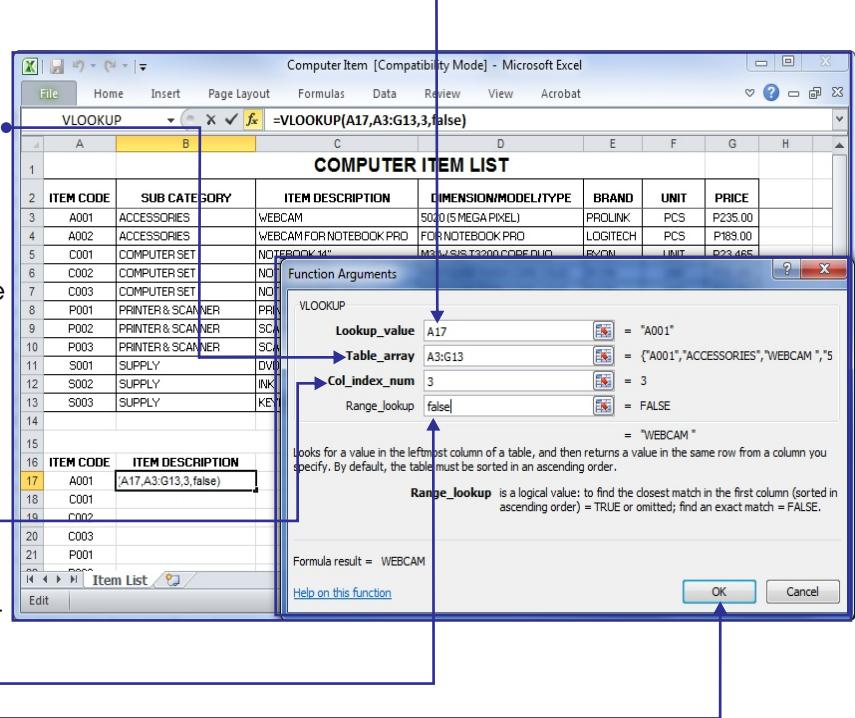
The **Function Arguments** box appears, asking for the arguments (or parameters) needed in order to complete the **VLOOKUP** function. These are the three pieces of information I mentioned above.



Column	Row	Content
Computer Item	1	ITEM CODE: A001, SUB CATEGORY: ACCESSORIES, ITEM DESCRIPTION: WEBCAM
	2	ITEM CODE: A002, SUB CATEGORY: ACCESSORIES, ITEM DESCRIPTION: WEBCAM FOR NOTEBOOK PRO
	3	ITEM CODE: C001, SUB CATEGORY: COMPUTER SET, ITEM DESCRIPTION: NOTEBOOK 14"
	4	ITEM CODE: C002, SUB CATEGORY: COMPUTER SET, ITEM DESCRIPTION: NOTEBOOK 14"
	5	ITEM CODE: C003, SUB CATEGORY: COMPUTER SET, ITEM DESCRIPTION: NOTEBOOK 14"
	6	ITEM CODE: P001, SUB CATEGORY: PRINTER & SCANNER, ITEM DESCRIPTION: PRINTER ALL IN ONE
	7	ITEM CODE: P002, SUB CATEGORY: PRINTER & SCANNER, ITEM DESCRIPTION: PRINTER & SCANNER
	8	ITEM CODE: P003, SUB CATEGORY: SUPPLY, ITEM DESCRIPTION: DVDRW
	9	ITEM CODE: S001, SUB CATEGORY: SUPPLY, ITEM DESCRIPTION: DVDRW
	10	ITEM CODE: S002, SUB CATEGORY: SUPPLY, ITEM DESCRIPTION: INK
	11	ITEM CODE: S003, SUB CATEGORY: SUPPLY, ITEM DESCRIPTION: KEYBOARD
	12	ITEM CODE: A001, SUB CATEGORY: ACCESSORIES, ITEM DESCRIPTION: WEBCAM
	13	ITEM CODE: A002, SUB CATEGORY: ACCESSORIES, ITEM DESCRIPTION: WEBCAM FOR NOTEBOOK PRO
	14	ITEM CODE: C001, SUB CATEGORY: COMPUTER SET, ITEM DESCRIPTION: NOTEBOOK 14"
Items Sold	1	ITEM CODE: A001, ITEM DESCRIPTION: WEBCAM
	2	ITEM CODE: A002, ITEM DESCRIPTION: WEBCAM
	3	ITEM CODE: C001, ITEM DESCRIPTION: NOTEBOOK 14"
	4	ITEM CODE: C002, ITEM DESCRIPTION: NOTEBOOK 14"
	5	ITEM CODE: P001, ITEM DESCRIPTION: PRINTER & SCANNER
	6	ITEM CODE: P002, ITEM DESCRIPTION: PRINTER & SCANNER
	7	ITEM CODE: P003, ITEM DESCRIPTION: PRINTER & SCANNER
	8	ITEM CODE: S001, ITEM DESCRIPTION: DVDRW
	9	ITEM CODE: S002, ITEM DESCRIPTION: DVDRW
	10	ITEM CODE: S003, ITEM DESCRIPTION: DVDRW
	11	ITEM CODE: A001, ITEM DESCRIPTION: WEBCAM
	12	ITEM CODE: A002, ITEM DESCRIPTION: WEBCAM
	13	ITEM CODE: C001, ITEM DESCRIPTION: NOTEBOOK 14"
	14	ITEM CODE: C002, ITEM DESCRIPTION: NOTEBOOK 14"
Items Sold Today	1	ITEM CODE: A001, ITEM DESCRIPTION: WEBCAM
	2	ITEM CODE: A002, ITEM DESCRIPTION: WEBCAM
	3	ITEM CODE: C001, ITEM DESCRIPTION: NOTEBOOK 14"
	4	ITEM CODE: C002, ITEM DESCRIPTION: NOTEBOOK 14"
	5	ITEM CODE: P001, ITEM DESCRIPTION: PRINTER & SCANNER
	6	ITEM CODE: P002, ITEM DESCRIPTION: PRINTER & SCANNER
	7	ITEM CODE: P003, ITEM DESCRIPTION: PRINTER & SCANNER
	8	ITEM CODE: S001, ITEM DESCRIPTION: DVDRW
	9	ITEM CODE: S002, ITEM DESCRIPTION: DVDRW
	10	ITEM CODE: S003, ITEM DESCRIPTION: DVDRW
	11	ITEM CODE: A001, ITEM DESCRIPTION: WEBCAM
	12	ITEM CODE: A002, ITEM DESCRIPTION: WEBCAM
	13	ITEM CODE: C001, ITEM DESCRIPTION: NOTEBOOK 14"
	14	ITEM CODE: C002, ITEM DESCRIPTION: NOTEBOOK 14"
Computer Item	1	ITEM CODE: A001, SUB CATEGORY: ACCESSORIES, ITEM DESCRIPTION: WEBCAM
	2	ITEM CODE: A002, SUB CATEGORY: ACCESSORIES, ITEM DESCRIPTION: WEBCAM FOR NOTEBOOK PRO
	3	ITEM CODE: C001, SUB CATEGORY: COMPUTER SET, ITEM DESCRIPTION: NOTEBOOK 14"
	4	ITEM CODE: C002, SUB CATEGORY: COMPUTER SET, ITEM DESCRIPTION: NOTEBOOK 14"
	5	ITEM CODE: C003, SUB CATEGORY: COMPUTER SET, ITEM DESCRIPTION: NOTEBOOK 14"
	6	ITEM CODE: P001, SUB CATEGORY: PRINTER & SCANNER, ITEM DESCRIPTION: PRINTER ALL IN ONE
	7	ITEM CODE: P002, SUB CATEGORY: PRINTER & SCANNER, ITEM DESCRIPTION: PRINTER & SCANNER
	8	ITEM CODE: P003, SUB CATEGORY: SUPPLY, ITEM DESCRIPTION: DVDRW
	9	ITEM CODE: S001, SUB CATEGORY: SUPPLY, ITEM DESCRIPTION: DVDRW
	10	ITEM CODE: S002, SUB CATEGORY: SUPPLY, ITEM DESCRIPTION: INK
	11	ITEM CODE: S003, SUB CATEGORY: SUPPLY, ITEM DESCRIPTION: KEYBOARD
	12	ITEM CODE: A001, SUB CATEGORY: ACCESSORIES, ITEM DESCRIPTION: WEBCAM
	13	ITEM CODE: A002, SUB CATEGORY: ACCESSORIES, ITEM DESCRIPTION: WEBCAM FOR NOTEBOOK PRO
	14	ITEM CODE: C001, SUB CATEGORY: COMPUTER SET, ITEM DESCRIPTION: NOTEBOOK 14"

## 5 Enter the arguments needed

- Look up the item code in cell A17
- Go onto the next argument, the **Table\_array**. Remember, this is WHERE FROM. Select the look up table, not including the header line.
- Select the third argument WHICH COLUMN EXACTLY? This argument helps us specify which piece of information from the database **VLOOKUP** needs to find to associate with our item code in A17. In this example we count the number of columns. This table had 7 columns, but the information we want to retrieve is in column 3. This means that we must enter a value of "3" into the **Col\_index\_num** box.
- For the fourth piece of information, TRUE or FALSE. The **TRUE** range look up will look for the value closest (but always below). **FALSE** range look up will look for an exact match.
- Press OK.



## 6 HOWEVER, this formula needs to have \$ signs added to be really useful and get the value of the lookup. The \$ signs need to go around the table array, the section we want to STICK. You can edit the formula by clicking straight into the cell.

## 7 Now you can drag down to reveal all the other item descriptions.

ITEM CODE	ITEM DESCRIPTION
A001	WEBCAM
C001	NOTEBOOK 14"
C002	NOTEBOOK 14"
C003	NOTEBOOK 14"
P001	PRINTER ALL IN ONE
P002	SCANNER
P003	SCANNER
S003	KEYBOARD
C002	NOTEBOOK 14"
C003	NOTEBOOK 14"
A001	WEBCAM
C001	NOTEBOOK 14"

## Applying Hlookup

1 To use the function, select the **target cell** you want the answer to appear in and then select the formulas menu from the menu bar in Excel. Select the **Lookup & Reference** tab to access the **HLOOKUP** function.

2 Select **HLOOKUP** and then add the parameters in the formula window.

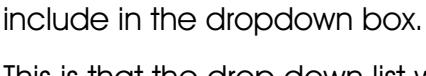
3 The **Lookup\_value** tells Excel what we are looking for. In this case we have typed in Apples so that Excel will search for "Apples" within our table. The **Table\_array** parameter tells Excel which table to search for the value. The **Row\_index\_num** parameter tells Excel to return a value in a particular row if it finds the value we are searching for. Finally, the **FALSE** parameter tells Excel to find an exact match for our search term.

4 This is what the result will look like:

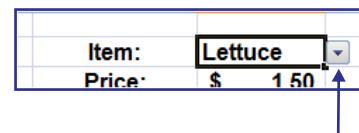
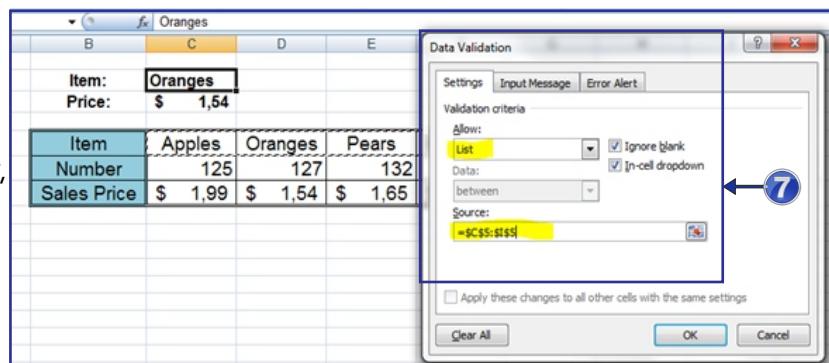
5 We can make it easier. Let's assume there are a number of people working in the shop and they would like to look up the item and price without learning how to use the **HLOOKUP** function. Instead of using "Apples" as the Lookup-value parameter, we can assign a cell value to the **lookup\_value** and then employees can merely type in the item name. This is what our new formula will look like using C2 as the **lookup\_value**:

Item	Apples	Oranges	Pears	Bananas	Guavas	Lettuce	Broccoli
Number	125	127	132	142	154	165	145
Sales Price	\$ 1.99	\$ 1.54	\$ 1.65	\$ 1.80	\$ 2.20	\$ 1.50	\$ 1.60

Item	Apples	Oranges	Pears	Bananas	Guavas	Lettuce	Broccoli
Number	125	127	132	142	154	165	145
Sales Price	\$ 1.99	\$ 1.54	\$ 1.65	\$ 1.80	\$ 2.20	\$ 1.50	\$ 1.60

- 6 If you type **Oranges** now in C2, the Excel will search for "Oranges" and return the price for that item:
  - 7 We can make this process even easier for our employees by creating a dropdown list for our employees to select, instead of having them type in the item name. To create a dropdown list, select cell **C2** – this is where we want our dropdown box to appear. Then select Data Validation from the Data menu: To create a drop down list of all the item names, select list from the allow menu and then select the range of cells you want to include in the dropdown box.
  - 8 This is what the drop down list will look like in your worksheet: 

C	D	E	F	G	H	I	
Item:	Oranges						
Price:	\$ 1.54						
Item	Apples	Oranges	Pears	Bananas	Guavas	Lettuce	Broccoli
Number	125	127	132	142	154	165	145
Sales Price	\$ 1.99	\$ 1.54	\$ 1.65	\$ 1.80	\$ 2.20	\$ 1.50	\$ 1.60



# **Consolidating Reports**

You can use Excel's Consolidate feature to consolidate your worksheets (located in one workbook or multiple workbooks) into one worksheet. Below you can find the workbooks of three districts. To summarize and report results from data on separate worksheets, you can consolidate the data from each separate worksheet into one worksheet (or master worksheet). The worksheets you consolidate can be in the same workbook as the master worksheet or in other workbooks. When you consolidate data in one worksheet, you can more easily update and aggregate it on a regular or ad hoc basis.

District 1 [Compatibility Mode] - Microsoft Excel

B2	fx	2128			
	A	B	C	D	E
1		Quarter 1	Quarter 2	Quarter 3	Quarter 4
2	Coffee	\$2,128	\$3,486	\$5,904	\$9,400
3	Tea	\$4,939	\$2,148	\$3,918	\$5,921
4	Milk	\$1,423	\$4,234	\$5,336	\$1,535
5					

	A	B	C	D	E
1		Quarter 1	Quarter 2	Quarter 3	Quarter 4
2	Coffee	\$2,016	\$3,546	\$7,019	\$8,761
3	Milk	\$8,528	\$3,837	\$9,605	\$2,559
4					
5					

As you can see, the worksheets are not identical. However, the beauty of the Consolidate feature is that it can easily sum, count, average, etc this data by looking at the labels. This is a lot easier than creating formulas.

- ① Open all three workbooks.
- ② Open a blank workbook. On the Data tab, click Consolidate.
- ③ Choose the Sum function to sum the data.
- ④ Click in the Reference box, select the range A1:E4 in the district1 workbook, and click Add.
- ⑤ Repeat step 4 for the district2 and district3 workbook.
- ⑥ Check Top row, Left column and Create links to source data.

Note: if you don't check Top row and Left column, Excel sums all cells that have the same position. For example, cell B2 (in district1.xls) + cell B2 (in district2.xls) + cell B2 (in district3.xls).

Because our worksheets are not identical, we want Excel to sum cells that have the same labels. If you check Create links to source data, Excel creates a link to your source data (your consolidated data will be updated if your source data changes) and creates an outline.

- ⑦ Click OK.

The screenshot illustrates the process of consolidating data from three separate workbooks (district1.xls, district2.xls, and district3.xls) into a single worksheet (Sheet1) in a new workbook (Book1). The consolidation is set up using the 'Sum' function, selecting ranges A1:E4 from each district's sheet. The 'Create links to source data' option is checked, enabling updates to the original files to reflect in the consolidated sheet. The resulting 'Result' shows a summary table with columns for Quarter 1 through Quarter 4, and rows for categories like Coffee, Tea, and Milk, with the total value for each category per quarter.

	A	B	C	D	E	F
1	1	Quarter 1	Quarter 2	Quarter 3	Quarter 4	
5	Coffee	\$6,624	\$7,032	\$20,079	\$27,198	
8	Tea		\$10,941	\$2,148	\$5,148	\$12,450
12	Milk		\$18,625	\$8,071	\$17,446	\$11,238

# Sorting and Filtering Data

Sorting or arranging data is the most common task when you want to organize your data. You can sort your MS Excel's data on one column or multiple columns and arrange it in ascending or descending order.

## Sort Data

### One Column

To sort on one column, execute the following steps.

- ① Click any cell in the column you want to sort.
- ② To sort in ascending order, on the Data tab, click AZ.

The screenshot shows two versions of a data table. The top version has the 'Last Name' column header selected (cell A2). The bottom version shows the data sorted by 'Last Name' in ascending order, with 'Brown' at the top. The 'Data' tab is active, and the 'Sort & Filter' group is visible, showing the 'AZ' icon highlighted with a blue circle and arrow.

Last Name	Sales	Country	Quarter
Smith	\$16,753.00	UK	Qtr 3
Johnson	\$14,808.00	USA	Qtr 4
Jones	\$10,644.00	UK	Qtr 2
Williams	\$12,438.00	UK	Qtr 1
Brown	\$4,865.00	USA	Qtr 4
Williams	\$18,919.00	USA	Qtr 3
Jones	\$9,213.00	USA	Qtr 4
Jones	\$7,433.00	UK	Qtr 1
Brown	\$3,255.00	USA	Qtr 2
Williams	\$14,867.00	USA	Qtr 3
Williams	\$19,302.00	UK	Qtr 4
Smith	\$9,698.00	USA	Qtr 1

### Multiple Columns

To sort on multiple columns, execute the following steps.

- ① On the Data tab, click Sort.
- ② Select Last Name from the 'Sort by' drop-down list.
- ③ Click on Add Level.
- ④ Select Sales from the 'Then by' drop-down list.
- ⑤ Click OK.

The screenshot shows the 'Data' tab active with the 'Sort & Filter' group open. The 'Sort' icon is highlighted with a blue circle and arrow. Below it, the 'Sort' dialog box is open, showing two levels of sorting: 'Sort by' (Last Name) and 'Then by' (Sales). The 'Sort' dialog box is overlaid on a larger 'Sort' dialog box, which also displays the same two levels of sorting. Step numbers 1 through 5 are overlaid on the interface to indicate the sequence of actions.

Last Name	Sales	Country	Quarter
Brown	\$4,865.00	USA	Qtr 4
Brown	\$3,255.00	USA	Qtr 2
Johnson	\$14,808.00	USA	Qtr 4
Jones	\$10,644.00	UK	Qtr 2
Williams	\$12,438.00	UK	Qtr 1
Jones	\$9,213.00	USA	Qtr 4
Jones	\$7,433.00	UK	Qtr 1
Brown	\$16,753.00	UK	Qtr 3
Smith	\$18,919.00	USA	Qtr 3
Smith	\$9,698.00	USA	Qtr 1
Williams	\$14,867.00	USA	Qtr 3
Williams	\$19,302.00	UK	Qtr 4

Result:

Records are sorted by Last Name first and Sales second.

Last Name	Sales	Country	Quarter
Brown	\$4,865.00	USA	Qtr 4
Brown	\$3,255.00	USA	Qtr 2
Johnson	\$14,808.00	USA	Qtr 4
Jones	\$10,644.00	UK	Qtr 2
Williams	\$12,438.00	UK	Qtr 1
Jones	\$9,213.00	USA	Qtr 4
Jones	\$7,433.00	UK	Qtr 1
Brown	\$16,753.00	UK	Qtr 3
Smith	\$18,919.00	USA	Qtr 3
Smith	\$9,698.00	USA	Qtr 1
Williams	\$14,867.00	USA	Qtr 3
Williams	\$19,302.00	UK	Qtr 4

## Filtering Data

When you use the Advanced Filter, you need to enter the criteria on the worksheet. Create a Criteria range(blue border below for illustration only) above your data set. Use the same column headers. Be sure there's at least one blank row between your Criteria range and data set.

### Advance Filter

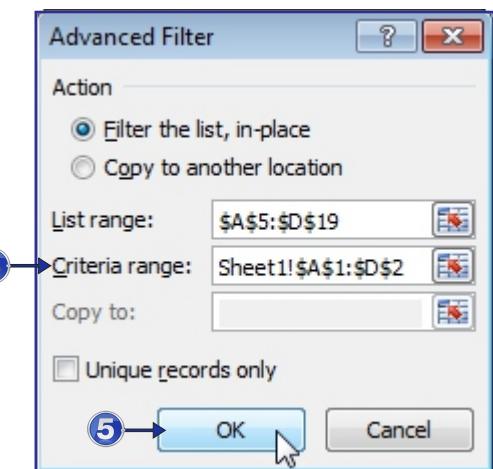
- ① Enter the criteria shown below on the worksheet.
- ② Click any single cell inside the data set.
- ③ On the Data tab, in the Sort & Filter group, click Advanced.
- ④ Click in the Criteria range box and select the range A1:D2 (blue).
- ⑤ Click OK

Notice the options to copy your filtered data set to another location and display unique records only (if your data set contains duplicates).

A	B	C	D
Last Name	Sales	Country	Quarter
	USA	Qtr 4	
Johnson	\$14,808.00	USA	Qtr 4
Williams	\$10,644.00	UK	Qtr 2
Jones	\$1,390.00	USA	Qtr 3
Brown	\$4,865.00	USA	Qtr 4
Williams	\$12,438.00	UK	Qtr 1
Johnson	\$9,339.00	UK	Qtr 2
Smith	\$18,919.00	USA	Qtr 3
Jones	\$9,213.00	USA	Qtr 4
Jones	\$7,433.00	UK	Qtr 1
Brown	\$3,255.00	USA	Qtr 2
Williams	\$14,867.00	USA	Qtr 3
Williams	\$19,302.00	UK	Qtr 4
Smith	\$9,698.00	USA	Qtr 1

### Result

A	B	C	D	E
Last Name	Sales	Country	Quarter	
	USA	Qtr 4		
Johnson	\$14,808.00	USA	Qtr 4	
Brown	\$4,865.00	USA	Qtr 4	
Jones	\$9,213.00	USA	Qtr 4	



# 3

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## Laboratory



## SpreadSheet

VISUALLESSONGUIDE

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## Manual

# LABORATORY MANUAL

## Lesson 4 Formulas and Functions in Microsoft Excel

A formula is an expression which calculates the value of a cell. Functions are predefined formulas and are already available in Excel. The ability to perform calculations is one of the purposes of using a spreadsheet application. Some examples of the types of calculations that can be done include: totals, subtotals, count, average and standard deviation. Formulas are instructions for performing calculations. The best way to construct a formula is to use cell references instead of typing numbers in the formula. This enables Excel to automatically update the results of formulas when you change values in the cells referenced. Functions perform calculations by using specific values, called the arguments. The particular order by which the calculations are performed is called the syntax. Like formulas, the syntax of a function always begins with the equal sign (=) followed by the function name and then the arguments.

### Objectives

After completing this Laboratory, you should be able to:

- apply the method of creating formula based on a given worksheet problem;
- manipulate a worksheet using the concept of reference absolute and relative cell; and
- demonstrate proper presentation on applying basic functions.

### Lab 4.1 Electioneering

Estimated Completion time: 5 - 10 Minutes

Directions:

1. Launch Microsoft Excel and open the file **Electioneering**.
2. Follow the steps on how to create formulas.
3. Specifically, do the following:
  - a. Create a formula to sum up automatically the total votes and the cast votes when you enter any numbers in each column.
  - b. Finish first the formula of each place and candidate and type in the data below.
4. Make sure that the total votes and the total cast votes should automatically sum up.
5. Save the worksheet as its document name and place it to your own folder.

**Score**



**Preview:**

The screenshot shows a Microsoft Excel spreadsheet titled "Electioneering - Microsoft Excel". The spreadsheet contains a header section with "Unofficial Report", "ELECTION 2016", and "As of May 10, 2016". Below this is a table titled "PRESIDENTIAL CANDIDATES" with columns for "Candidate", "Region 1", "Region 2", and "Region 3". The data rows show the following information:

Candidate	Region 1	Region 2	Region 3
Roxas	456,678	501,678.00	433,833.00
Duterte	233,433	278,433.00	210,588.00
Cayetano	543,233	588,233.00	520,388.00
Escodero	233,425	278,425.00	210,580.00
Poe	765,344	810,344.00	742,499.00
Villar	56,664	101,664.00	33,819.00
Gordon	5,500	6,003.00	80,034.00
Estrada	345,333	390,333.00	322,488.00

## Lab 4.2 Cells Talk

*Estimated Completion time: 5 - 10 Minutes*

Directions:

1. Launch **Microsoft Excel**.
2. Open the **Relative Cells** worksheet.
3. Follow the steps on how to assign absolute references and relative cells.
4. Specifically, do the following:
  - a. Type the dollar sign in each figure.
  - b. Assign absolute references and relative references.
5. Save the worksheet as its document name and place it to your own folder.

**Score**



**Preview:**

	Comparative Income			
	as of 2005 (figure is in Millions)			
Month	Companies	Companies	Companies	Companies
January	Company A	Company B	Company C	Company D
February	654.23	623.56	647.45	698.12
March	452.77	475.46	456.23	442.00
April	256.23	312.45	475.46	493.10
May	457.52	578.19	500.13	513.45
June	758.45	745.53	745.65	759.18
July	457.54	498.46	452.78	463.43
August	415.89	456.12	574.23	581.12
September	478.56	501.11	512.43	576.46
October	476.41	574.45	574.63	600.10
November	542.63	643.17	647.45	590.78
December	478.54	487.94	457.77	500.23
Total:	5428.77			
March, April and May combined:	1166.52			

## Lab 4.3 Relatively Absolute

*Estimated Completion time: 5 - 10 Minutes*

Directions:

1. Launch **Microsoft Excel**.
2. Open the **Relative Cells** worksheet.
3. Follow the steps on how to copy a relative formula and absolute formula.
4. Specifically, do the following:
  - a. Copy a relative formula from the total sales of company A to sum up the total sales of the remaining companies. Do the same process to sum up the sales combination of March, April and May.
  - b. Copy an absolute formula from the combined month sales and place it in cell B20.
5. Save the worksheet as **Copy Formula** and place it to your own folder.

**Score**



**Preview:**

	Comparative Income			
	as of 2005 (figure is in Millions)			
Month	Companies	Companies	Companies	Companies
January	Company A	Company B	Company C	Company D
February	654.23	623.56	647.45	698.12
March	452.77	475.46	456.23	442.00
April	256.23	312.45	475.46	493.10
May	457.52	578.19	500.13	513.45
June	758.45	745.53	745.65	759.18
July	457.54	498.46	452.78	463.43
August	415.89	456.12	574.23	581.12
September	478.56	501.11	512.43	576.46
October	476.41	574.45	574.63	600.10
November	542.63	643.17	647.45	590.78
December	478.54	487.94	457.77	500.23
Total:	5428.77			
March, April and May combined:	1166.52			

**Score**

## Lab 4.4 Do The Functions

*Estimated Completion time: 5 - 10 Minutes*

Directions:

1. Launch **Microsoft Excel**.
2. Open the **Applying Function** worksheet.
3. Follow the steps on how to apply a function and AutoSum. Refer to your textbook for your guide.
4. Answer the following questions by applying function and AutoSum.
  - a. Find the average of Alvin's remittance.  
answer:
  - b. Find the maximum of Jonas' remittance.  
answer:
  - c. Find the minimum of Tiburcio's remittance.  
answer:
  - d. Find the sum or total of the remittances using Autosum.  
answer:
5. Save the exercise as its document name and place it to your own folder.

**Preview:**

Ice Cream Remittance					
Toby's Ice Cream Parlor Vendors					
Days	Alvin	Jonas	Tiburcio	Bador	Peter
Monday	765	563	789	478	478
Tuesday	562	856	758	256	846
Wednesday	456	941	845	475	851
Thursday	756	621	658	685	589
Friday	846	589	951	478	658
Saturday	874	946	863	568	957
Total					
Remittance:					

## Lab 4.5 Salaries Summation

*Estimated Completion time: 5 - 10 Minutes*

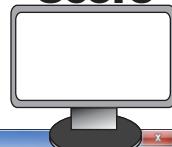
Directions:

1. Launch Microsoft Excel
2. Open the **Annual Salaries** worksheet
3. Follow the steps on how to perform summation function in Excel.
4. Get the total summation of the annual salaries of the different occupations from Year 2010-2013
5. Save the worksheet as a new filename **Annual Salaries Summation** and place it to your own folder.

**Preview:**

Occupation	Average Annual Salary	Average Annual Salary	Average Annual Salary	Average Annual Salary
	2013	2012	2011	2010
Anesthesiologists	Php 235,070.00	Php 235,071.00	Php 235,072.00	Php 235,073.00
Surgeons	Php 230,000.00	Php 229,000.00	Php 228,000.00	Php 227,500.00
Oral and Maxillofacial Surgeons	Php 218,960.00	Php 218,961.00	Php 218,962.00	Php 218,963.00
Obstetricians and Gynecologists	Php 212,570.00	Php 212,571.00	Php 212,572.00	Php 212,573.00
Orthodontists	Php 196,270.00	Php 196,271.00	Php 196,272.00	Php 196,273.00
Physicians and Surgeons, All Other	Php 188,440.00	Php 188,441.00	Php 188,442.00	Php 188,443.00
Family Practice General Practitioners	Php 187,200.00	Php 187,201.00	Php 187,202.00	Php 187,203.00
Psychiatrists	Php 182,660.00	Php 182,661.00	Php 182,662.00	Php 182,663.00
Chef Executives	Php 178,400.00	Php 178,401.00	Php 178,402.00	Php 178,403.00
Pediatricians, General	Php 170,530.00	Php 170,531.00	Php 170,532.00	Php 170,533.00
Dentists, All Other Specialists	Php 170,340.00	Php 170,341.00	Php 170,342.00	Php 170,343.00
Dentists, General	Php 164,370.00	Php 164,371.00	Php 164,372.00	Php 164,373.00
Electrical Engineers	Php 160,000.00	Php 159,999.00	Php 159,998.00	Php 159,997.00
Podiatrists	Php 135,070.00	Php 135,071.00	Php 135,072.00	Php 135,073.00
Marketing Managers	Php 133,700.00	Php 133,701.00	Php 133,702.00	Php 133,703.00
Natural Sciences Managers	Php 132,850.00	Php 132,851.00	Php 132,852.00	Php 132,853.00
Computer and Information Systems Managers	Php 132,570.00	Php 132,571.00	Php 132,572.00	Php 132,573.00
Lawyers	Php 131,990.00	Php 131,991.00	Php 131,992.00	Php 131,993.00
Airline Pilots, Copilots, and Flight Engineers	Php 129,000.00	Php 128,999.00	Php 128,998.00	Php 128,997.00
Prosthodontists	Php 128,310.00	Php 128,311.00	Php 128,312.00	Php 128,313.00
Financial Managers	Php 126,660.00	Php 126,661.00	Php 126,662.00	Php 126,663.00
Sales Managers	Php 123,150.00	Php 123,151.00	Php 123,152.00	Php 123,153.00
Law Teachers, Postsecondary	Php 122,280.00	Php 122,281.00	Php 122,282.00	Php 122,283.00
Air Traffic Controllers	Php 118,650.00	Php 118,651.00	Php 118,652.00	Php 118,653.00
Physicists	Php 117,000.00	Php 117,001.00	Php 117,002.00	Php 117,003.00
Psychologists	Php 116,500.00	Php 116,501.00	Php 116,502.00	Php 116,503.00
General and Operations Managers	Php 116,090.00	Php 116,091.00	Php 116,092.00	Php 116,093.00

**Score**

**Score**

## Lab 4.6 Grading Sheet

*Estimated Completion time: 10 - 15 Minutes*

Directions:

1. Launch Microsoft Excel
2. Open the **Grading Sheet** Worksheet
3. Follow the steps on how to perform functions in Microsoft Excel
4. Do the following
  - a. Get the total grade of the students using the Sum Function
  - b. Get the Average grade of the students and average grade in every grading period using the Average Function
  - c. Get the Minimum and Maximum Grades in every grading using the MAX and MIN Function
  - d. Get the Median Mark Grade in every quarter using the Median Function
  - e. Get the Rounded Grade of the average grades in the grading sheet using the ROUND Function, round value is 0.
5. Save the worksheet as **Computed Grades** and save it in your folder.

**Preview:**

No.	Names	First Grading	Second Grading	Third Grading	Fourth Grading	Total	FINAL GRADE	ROUNDED GRADE
6	1 Acañ Tesh	93.23	94.53	94.56	95.01	92.98		
7	2 Acenas, Rowena	90.02	90.80	91.00	92.98	90.02		
8	3 Avila, Kimberly	89.98	88.90	87.90	89.02	89.02		
9	4 Comon, Joit	85.23	86.56	86.89	87.94	86.56		
10	5 Gemina, Jolt	94.09	94.96	94.01	94.50	94.50		
11	6 Labis, Theresa	82.01	82.93	83.07	84.50	82.01		
12	7 Ulagas, Farah	90.02	89.39	88.89	89.89	89.89		
13	8 Ocañ, Vanessa	91.90	92.32	92.45	92.78	92.78		
14	9 Parana, Tina	96.90	96.95	97.09	97.20	97.20		
15	10 Sajnia, Eli	95.90	96.01	95.98	96.03	96.03		
16		M A X I M U M M A R K S						
17		A V E R A G E M A R K S						
18		M E D I A N M A R K						
19		M I N I M U M M A R K S						
20		N U M B E R O F S T U D E N T S						
21								
22								

## Lab 4.7 Grade Marks

*Estimated Completion time: 5 - 10 Minutes*

Directions:

1. Launch Microsoft Excel
  2. Open the **Grade Condition** Worksheet
  3. Follow the steps on how to perform If Conditions in Microsoft Excel
  4. Do the following:
    - a. Using the IF CONDITION in excel get the letter grade of the students Marks
- A = 95-100  
B = 80-94  
C = 75-81  
D=74 below

- b. Using the generated letter grade, get the status using the following condition statement:  
A= "PASS"  
B= "PASS"

**Preview:**

	Name	Course	Marks	Grade	Status
3	1 Adlaon, Clark Joseph	BSE	89		
4	2 Agcaoili, Jan Jay	BSE	90		
5	3 Baltazar, Ralph Gabriel	BSED	69		
6	4 Carson, Vincent	BSBA	96		
7	5 Dacalos, Marie Therese	BSA	74		
8	6 Llenares, Jan Grace	BSIT	87		
9	7 Madriaga, Reine Julia	BSIT	79		
10	8 Reyes, Ben Bryan	Comp Sci	87		
11	9 Salvador, Mikahella	Comp Sci	78		
12	10 Sevilla, Kimberly Petite	BSIT	89		
13					

C= "PASS"

D= "FAILED"

5. Save the worksheet as **Grade Condition Remarks** and save it in your folder.

**Score**

**Score**

## Lab 4.8 Vlookup for Voters

Estimated Completion time: 10 - 15 Minutes

Directions:

1. Launch Microsoft Excel
2. Open the **Voters List** Worksheet
3. Follow the steps on how to perform Vlookup in Microsoft Excel
4. Do the following:
  - a. From the given registration number who voted, perform Vlookup in getting the Application Numbers and Registered Names.
  - b. Double check if you performed it correctly
5. Save the worksheet as **Voters Vlookup** and save it in your folder.

**Preview**

VOTERS REGISTRATION LIST			Voters Who Voted Today		
Registration Number	Application Number	Registered Names	Registration No.	Application Number	Names
Registration No. 1	8	Bruce P Kraemer	Registration no. 67		
Registration No. 2	14	Richard H Paine	Registration no. 5		
Registration No. 3	15	Yoshinori Doi	Registration no. 56		
Registration No. 4	18	Matthew J Sherman	Registration no. 65		
Registration No. 5	26	Adrian P Stephens	Registration no. 12		
Registration No. 6	27	Eric T Tokubets	Registration no. 22		
Registration No. 7	28	Clint F Chaplin	Registration no. 18		
Registration No. 8	46	Richard H Barnwell	Registration no. 11		
Registration No. 9	49	Abhijit K Choudhury	Registration no. 9		
Registration No. 10	50	Justin P McNew	Registration no. 19		
Registration No. 11	51	Lee R Armstrong	Registration no. 51		
Registration No. 12	54	Stephen McCann	Registration no. 32		
Registration No. 13	56	Shigenori Hayase	Registration no. 45		
Registration No. 14	57	Frans M Hermansson	Registration no. 59		
Registration No. 15	58	Richard H Heens			
Registration No. 16	59	Kapil Sood			
Registration No. 17	63	Henry Ptasinski			
Registration No. 18	70	Daisuke Takeda			
Registration No. 19	76	Dorothy Stanley			
Registration No. 20	77	Dennis J Baker			
Registration No. 21	80	Christopher J Hansen			
Registration No. 22	81	Joe Kwak			
Registration No. 23	82	Carlos H Aldana			
Registration No. 24	83	Takashi Shono			
Registration No. 25	86	Mark M Kobayashi			
Registration No. 26	91	Joseph Levy			
Registration No. 27	96	Jaso Trachewsky			
Registration No. 28	107	Tetsuya Nakamura			
Registration No. 29	112	Harry R Worstell			
Registration No. 30	116	Tomoya Yamaura			
Registration No. 31	117	Bo Kvamstrom			
Registration No. 32	131	Michael Ellis			
Registration No. 33	136	Eric J Ojard			
Registration No. 34	147	Jack H Winters			
Registration No. 35	155	Floyd Backes			
Registration No. 36	157	Brian D Hart			

**Score**

## Lab 4.9 Hlookup for Books

Estimated Completion time: 10 - 15 Minutes

Directions:

1. Launch Microsoft Excel
2. Open the **Book Sales** Worksheet
3. Follow the steps on how to perform Hlookup in Microsoft Excel
4. Do the following:
  - a. From the given book sales report, Perform the Hlookup process in getting the book items and the 2014 sales
  - b. Double check if you performed it correctly

**Preview:**

BOOK SALES REPORT								
Book Items	K-12 education	Higher Education	Book Clubs & Mail Order	Mass Market Paperback	Audiobooks	Religious	E-books	Professional
2010 Sales	1,704	1,794	2,048	2,058	2,100	1,903	1,484	1,636
2011 Sales	1,518	1,485	1,396	1,341	1,349	1,224	1,208	1,260
2012 Sales	588	600	622	640	659	707	776	852
2013 Sales	1,042	1,086	1,119	1,142	1,092	1,090	1,196	1,217
2014 Sales	192	220	218	182	206	160	161	143

5. Save the worksheet as **Books Hlookup** save it in your folder

**Score****Lab 4.10 Student Sorting***Estimated Completion time: 5 - 10 Minutes*

Directions:

1. Launch Microsoft Excel
2. Open the **Student List** Worksheet
3. Follow the steps on how to sort data in Microsoft Excel
4. Sort the students list from A to Z
5. Save the worksheet as **Student List Sorted** save it in your folder.

**Preview**

	A	B	C	D	E	F
1	STUDENTS LIST					
2	Name	Roll No.	Dept	Section		
3	SUNIL KUMAR MEENA	Y6489	EE	C1		
4	AADITYA BHARAT KUMAR PANDYA	Y9003	ME	C1		
5	ABHISHEK ANAND	Y9024	AE	C1		
6	ABHISHEK TIWARI	Y9034	EE	C1		
7	AMAN GUPTA	Y9064	EE	C1		
8	AMIT SAXENA	Y9077	CE	C1		
9	ANKIT ANAND	Y9092	ME	C1		
10	ANURAG DASH	Y9115	EE	C1		
11	ARPIT SRIVASTAVA	Y9134	CE	C1		
12	ATUL KUMAR	Y9154	CE	C1		
13	BANOTIU KESHAVA RAO	Y9169	CHE	C1		
14	CHANDAN KUMAR	Y9180	CE	C1		
15	DIGRAJ SINGH CHAHAL	Y9200	ME	C1		
16	GOURAV GARG	Y9235	ME	C1		
17	KONANKI SIVARAM	Y9285	CE	C1		
18	KUMAR SHUBHAM	Y9297	ME	C1		
19	MADHAV GOSWAMI	Y9311	CE	C1		
20	MD. SHADAB ALAM	Y9336	EE	C1		
21	MUDIT DHAKAR	Y9349	ME	C1		
22	NAVIN KUMAR	Y9361	AE	C1		
23	NITISH ARYA	Y9388	AE	C1		
24	PAWAN KUMAR	Y9409	ME	C1		

**Lab 4.11 Area Consolidation***Estimated Completion time: 5 - 10 Minutes*

Directions:

1. Launch Microsoft Excel
2. Open the Worksheets **Area 1**, **Area 2**, **Area 3** and **Area 4**
3. Follow the steps on how to consolidate data in Microsoft Excel
4. Consolidate the four worksheets to get the needed data
5. Save the new consolidated worksheet as **Area Consolidate** save it in your folder.

**Preview**

Book Item	Jan-Mar	April-Jun	Jul-Sep
Monitors	245	321	432
Keyboards	233	121	322
Mice	321	322	244
Speakers	233	223	452
Flashdrives	211	312	444
Webcams	221	333	465
System Units	134	111	431
Headphones	931	222	323

Book Item	Jan-Mar	April-Jun	Jul-Sep	Oct-Dec
Monitors	235	324	456	131
Keyboards	121	121	234	231
Mice	677	657	657	432
Speakers	223	543	542	456
Flashdrives	312	345	345	554
Webcams	224	333	245	455
System Units	432	243	523	210
Headphones	222	222	346	623

Book Item	Jan-Mar	April-Jun	Jul-Sep
Monitors	10	21	12
Keyboards	12	43	23
Mouse	12	54	43
Speakers	20	45	27
Flashdrives	12	24	34
Webcams	32	32	56
System Units	12	54	67
Headphones	43	45	53

Book Item	Jan-Mar	April-Jun	Jul-Sep	Oct-Dec
Monitors	20	45	64	64
Keyboards	43	45	76	97
Mouse	55	46	90	78
Speakers	54	78	76	24
Flashdrives	24	67	67	65
Webcams	64	56	67	43
System Units	46	85	68	77
Headphones	68	43	65	67

**Score**