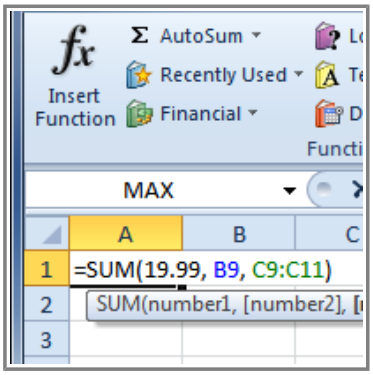
Working with Basic Functions



Figuring out formulas for calculations you want to make in Excel can be tedious and complicated. Fortunately, Excel has an entire library of **functions** or **predefined formulas** that you can take advantage of. You may be familiar with common functions like **sum**, **average**, **product** or **count**, but there are hundreds of functions in Excel, even for things like formatting text, referencing cells, calculating financial rates, analyzing statistics, and more.

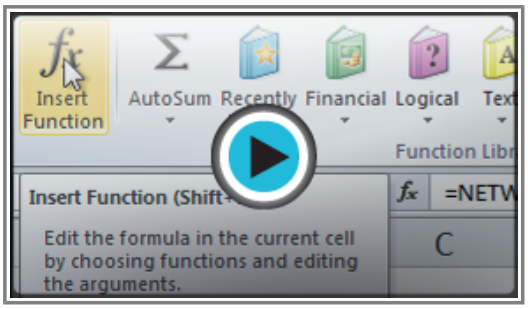
In this lesson, you will learn the basics of inserting common functions into your worksheet by utilizing the **AutoSum** and **Insert Functions** commands. You will also become familiar with how to **search and find various functions**, including exploring Excel's **Functions Library**.

Basic Functions

A **function** is a **predefined formula** that performs calculations using specific values in a particular order. One of the key benefits of functions is that they can save you time since you do not have to write the formula yourself. Excel has hundreds of different functions to assist with your calculations.

In order to use these functions correctly, you need to understand the different **parts of a function** and how to create **arguments** in functions to calculate values and cell references.

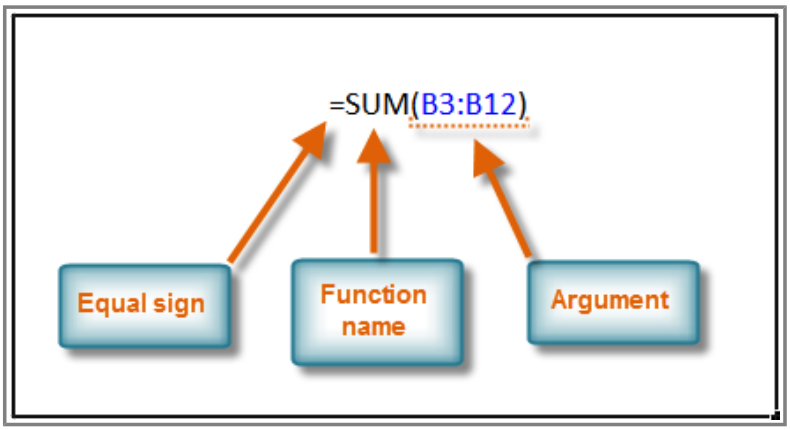
Watch the video to learn how to insert functions into your worksheet.



Watch the video (5:11). ***Need help?***

The Parts of a Function

The order in which you insert a function is important. Each function has a specific order, called **syntax**, which must be followed for the function to work correctly. The basic syntax to create a formula with a function is to insert an **equal sign (=)**, a **function name** (SUM, for example, is the function name for addition), and an **argument**. Arguments contain the information you want the formula to calculate, such as a range of cell references.



Syntax of a basic function

Working with Basic Arguments

Arguments must be enclosed in **parentheses**. Individual values or cell references inside the parentheses are separated by either **colons** or **commas**.

- **Colons** create a reference to a range of cells.

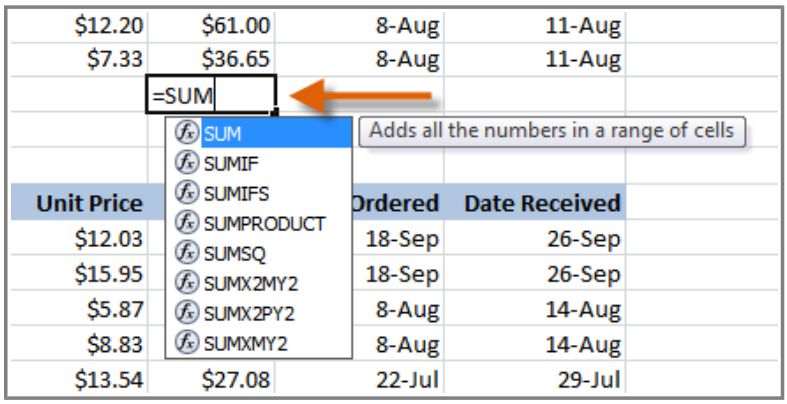
  For example, **=AVERAGE(E19:E23)** would calculate the **average** of the cell range E19 through E23.

- **Commas** separate individual values, cell references, and cell ranges in the parentheses. If there is more than one argument, you must separate each argument by a comma.

  For example, **=COUNT(C6:C14,C19:C23,C28)** will **count** all the cells in the three arguments that are included in parentheses.

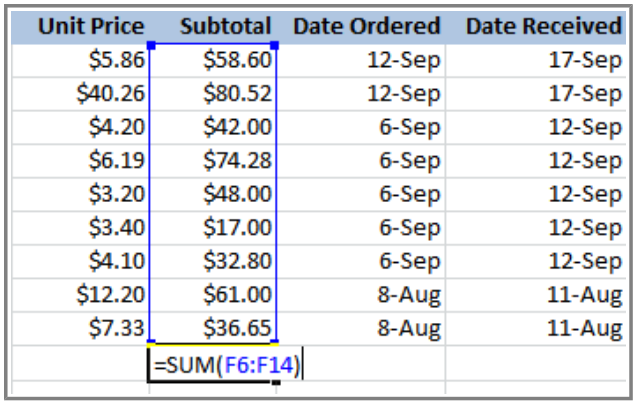
To Create a Basic Function in Excel:

1. Select the cell where the answer will appear (F15, for example)
2. Type the **equal sign (=)** and enter the **function name** (SUM, for example).



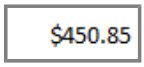
Creating a SUM function

3. Enter the cells for the **argument** inside the parenthesis.



Adding cells to the function argument

4. Press **Enter** and the result will appear.

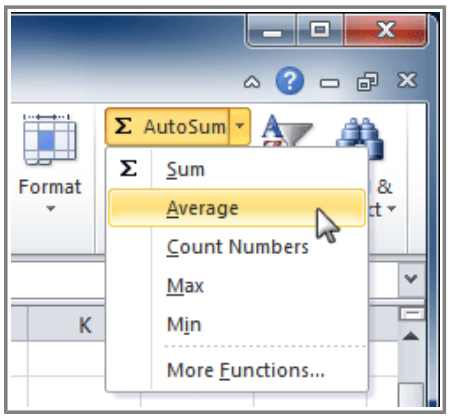


Result

Using AutoSum to select Common Functions:

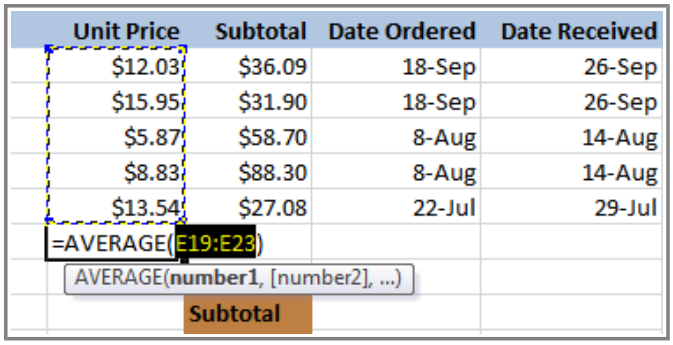
The **AutoSum** command allows you to automatically return the results for a range of cells for common functions like SUM and AVERAGE.

1. Select the cell where the answer will appear (E24, for example).
2. Click on the **Home** tab.
3. In the **Editing** group, click on the **AutoSum** drop-down arrow and select the function you desire (Average, for example).



AutoSum command

4. A formula will appear in the selected cell E24. If logically placed, AutoSum will select your cells for you. Otherwise, you will need to click on the cells to choose the argument you desire.



Unit Price	Subtotal	Date Ordered	Date Received
$12.03	$36.09	18-Sep	26-Sep
$15.95	$31.90	18-Sep	26-Sep
$5.87	$58.70	8-Aug	14-Aug
$8.83	$88.30	8-Aug	14-Aug
$13.54	$27.08	22-Jul	29-Jul

AutoSum selects and dsiplays cell range

5. Press **Enter** and the result will appear.

$11.24

Result

The **AutoSum** command can also be accessed from the **Formulas** tab.

Function Library

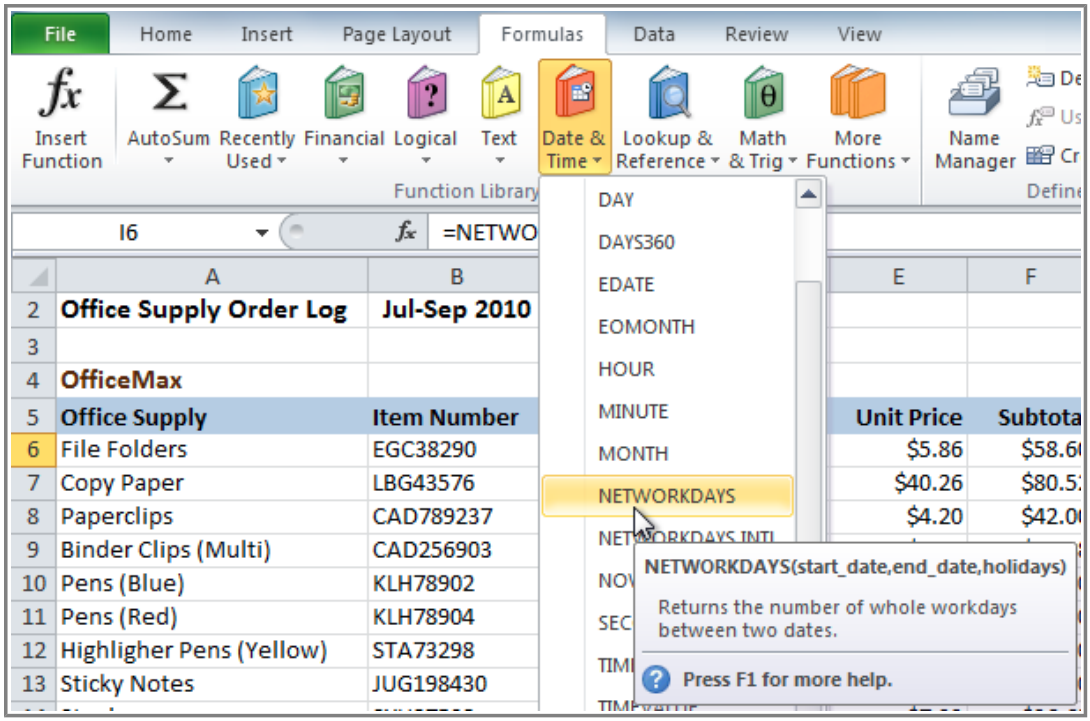
There are hundreds of functions in Excel, but only some will be useful for the kind of data you are working with. There is no need to learn every single function, but you may want to explore some of the different kinds to get ideas about which ones might be helpful to you as you create new spreadsheets.

A great place to explore functions is in the **Function Library** on the Formulas tab. Here you may search and

select Excel functions based on categories such as **Financial**, **Logical**, **Text**, **Date & Time**, and more. Review the following interactive to learn more.

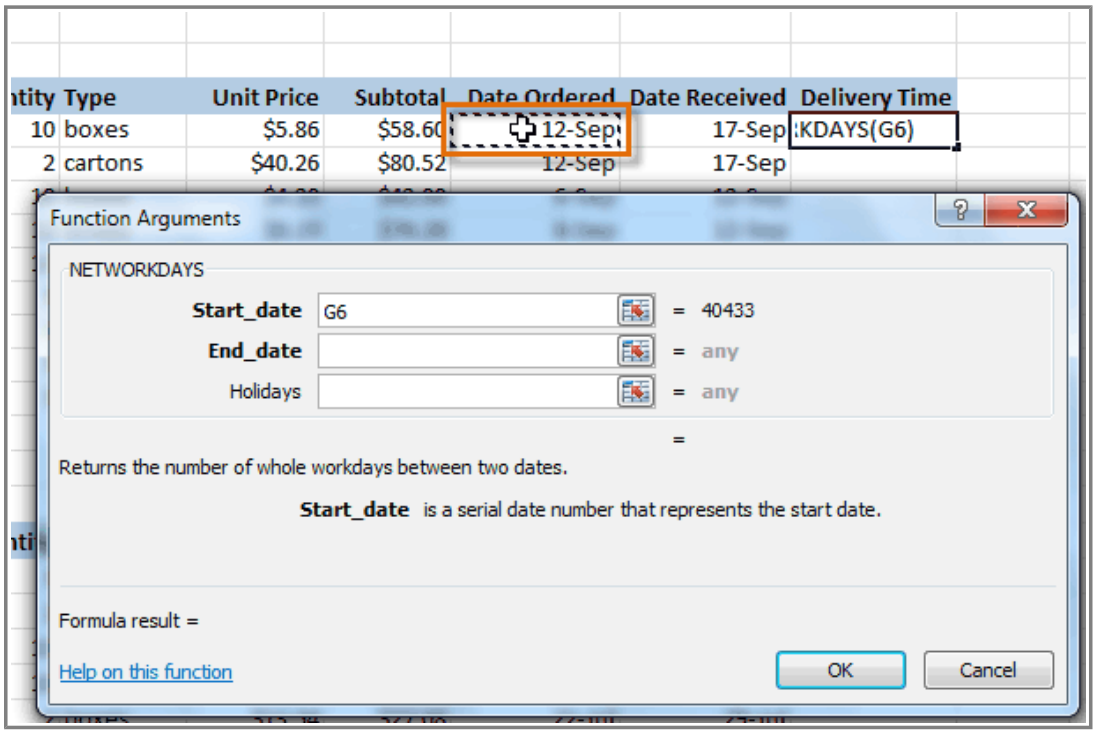
To Insert a Function from the Function Library:

1. Select the cell where the answer will appear (I6, for example)
2. Click on the **Formulas** tab.
3. From the **Function Library** group, select the **function category** you desire. In this example, we will choose Date & Time.
4. Select the desired **function** from the Date & Time drop-down menu. We will choose the NETWORKDAYS function to count the days between the order date and receive date in our worksheet.



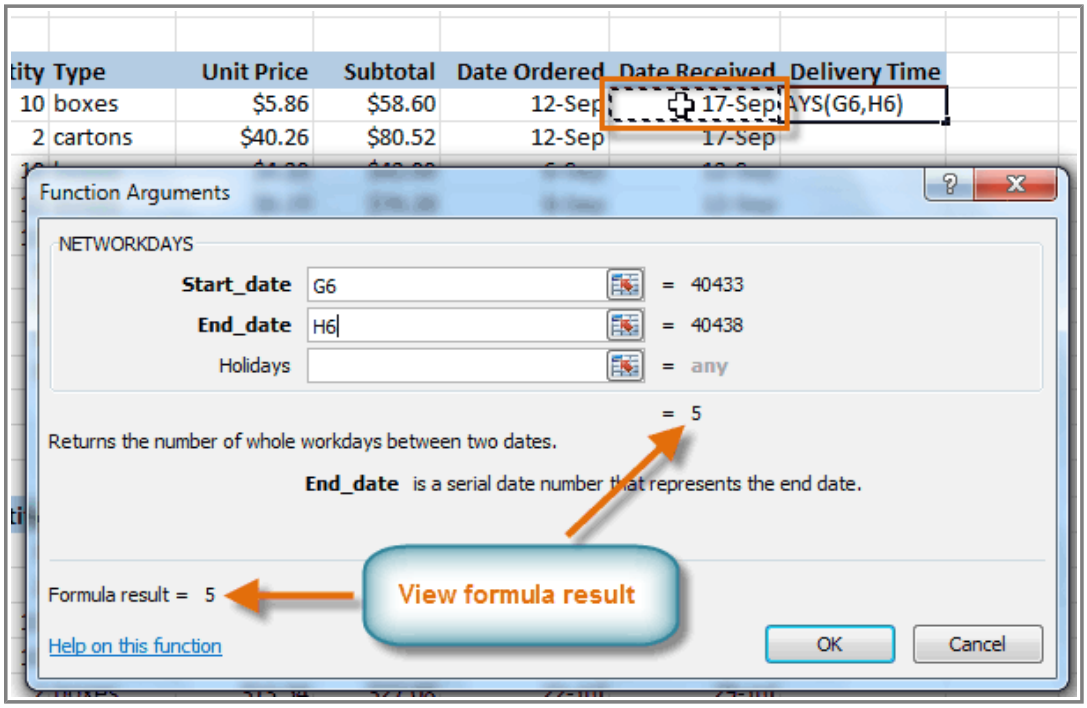
Function Library Date & Time category

5. The **Function Arguments** dialog box will appear. Insert the cursor in the **first field** and then enter or select the cell(s) you desire (G6, for example).



Selecting cell for the Start-date field

6. Insert the cursor in the **next field** and then enter or select the cell(s) you desire (H6, for example).



Selecting cell for the End_date field

7. Click **OK** and the result will appear. Our results show that it took 5 days to receive the order.

Date Ordered	Date Received	
12-Sep	17-Sep	5

Result

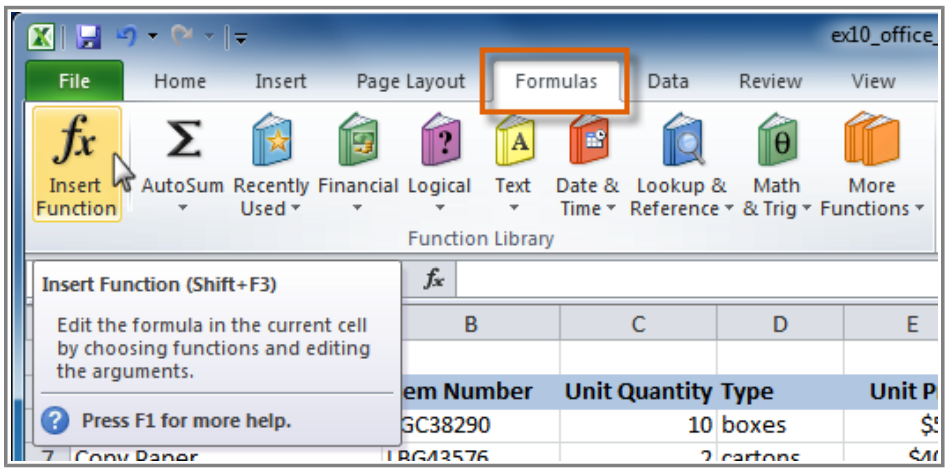
Insert Function Command

The **Insert Function** command is convenient because it allows you to search for a function by typing a description of what you are looking for or by selecting a category to peruse. The Insert Function command can also be used to easily enter or select more than one argument for a function.

Using the Insert Function command:

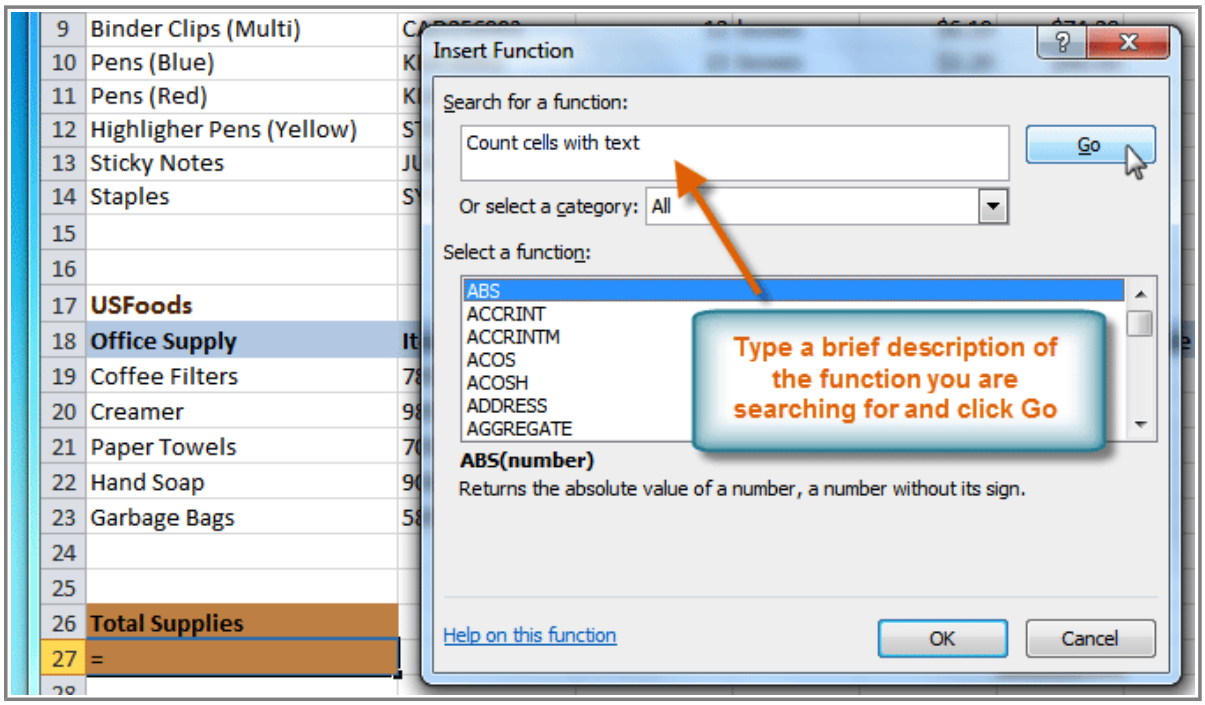
In this example, we want to find a function that will count the total number of supplies listed in the Office Supply Order Log. The basic COUNT function only counts cells with numbers; we want to count the cells in the Office Supply column, which uses text. Therefore, we will need to find a formula that counts cells with text.

1. Select the cell where the answer will appear (A27, for example)
2. Click on the **Formulas** tab and select the **Insert Function** command.



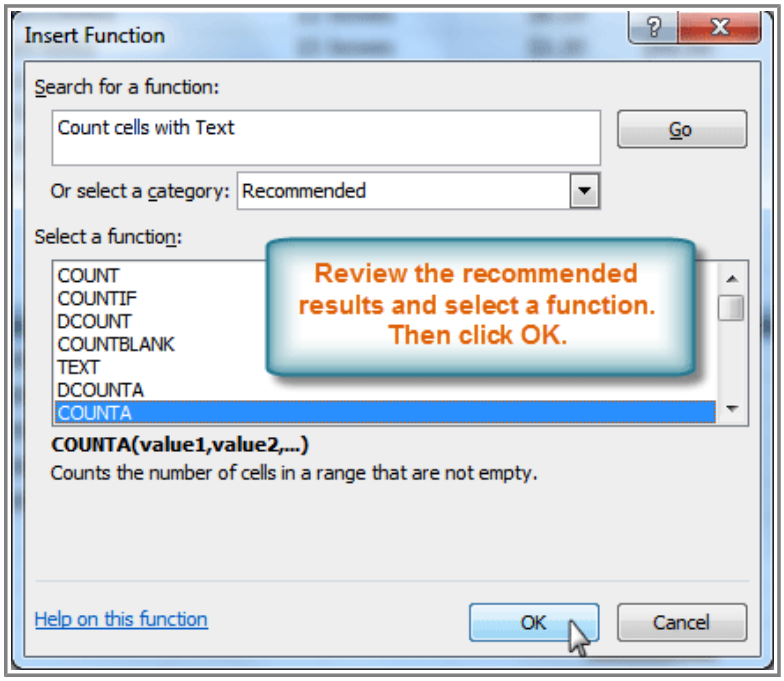
Insert Function command

3. The **Insert Function** dialog box will appear.
4. Type a **description** of the function you are searching for and click **Go**. For our example, we will type: *Count cells with text*. (You may also search by selecting a category.)



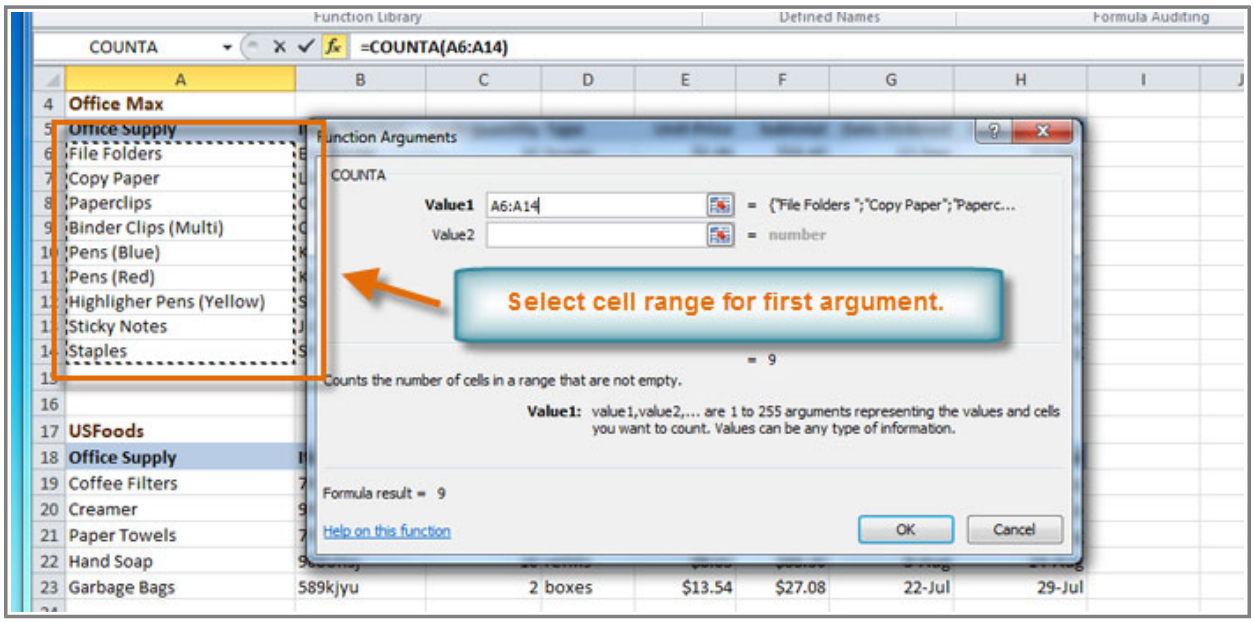
Searching for a function

5. Review the results to find the function you desire. We will use COUNTA. Then click **OK**.



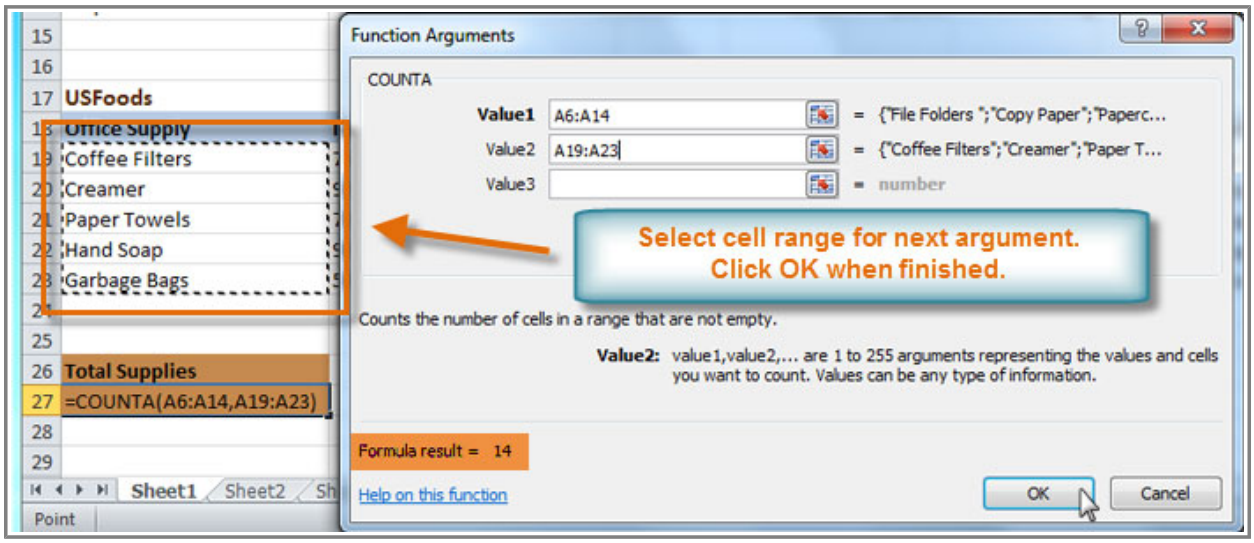
Reviewing function search results

6. The **Function Arguments** dialog box will appear. Insert the cursor in the **first field** and then enter or select the cell(s) you desire (A6:A14, for example).



Selecting cell range for Value1 field

7. Insert the cursor in the **next field** and then enter or select the cell(s) you desire (A19:A23, for example). (You may continue to add additional arguments if needed.)



Selecting cell range for Value2 field

8. Click **OK** and the result will appear. Our results show that 14 Total Supplies were ordered from our log.

Result

Challenge!

1. Open an existing Excel 2010 workbook. If you want, you can use this example.
2. Create a function that contains more than one argument.
3. Use AutoSum to insert a function. If you are using the example, insert the MAX function in cell E15 to find the highest priced supply.
4. Insert a function from the Functions Library. If you are using the example, find the PRODUCT function (multiply) to calculate the Unit Quantity times the Unit Price in cells F19 through F23.
5. Use the Insert Function command to search and explore functions.