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**—you can take advantage of. You may be familiar with common functions like **sum**, **average**, **product**, and **count**, but there are hundreds of functions in Excel, even for things like formatting text, referencing cells, calculating financial rates, and analyzing statistics.

In this lesson, you'll 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

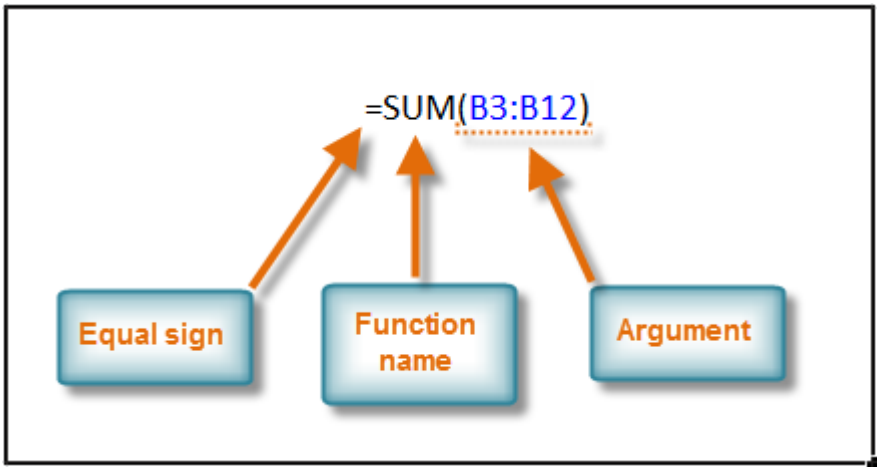
A **function** is a **predefined formula** that performs calculations using specific values in a particular order. One of the key benefits of functions is that they can save you time because you do not have to write the formula yourself. Excel has hundreds of functions to assist with your calculations.

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.

You can download Excel2010_Functions_Practice file from moodle for extra practice.

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 in order for the function to work correctly. The basic syntax to create a formula with a function is to insert an **equals sign (=)**, **function name** (SUM, for example, is the function name for addition), and **argument**. Arguments contain the information you want the formula to calculate, such as a range of cell references.



Working with 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.

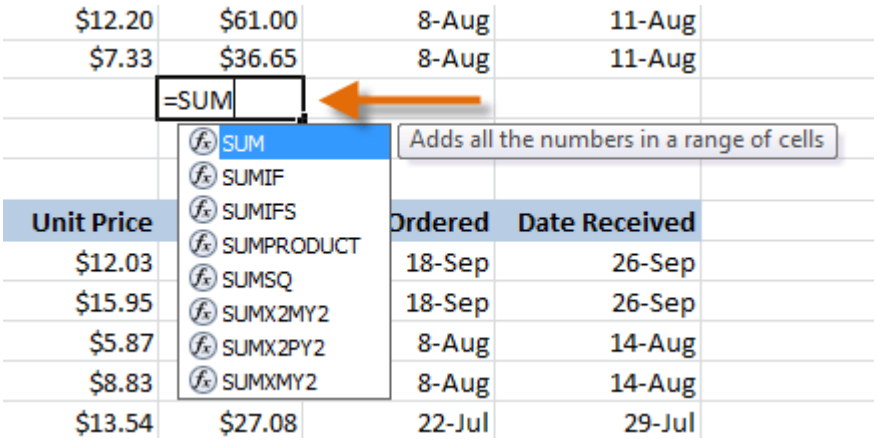
  For example, **=AVERAGE(E19:E23)** would calculate the **average** of the cell range E19 through E23.

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

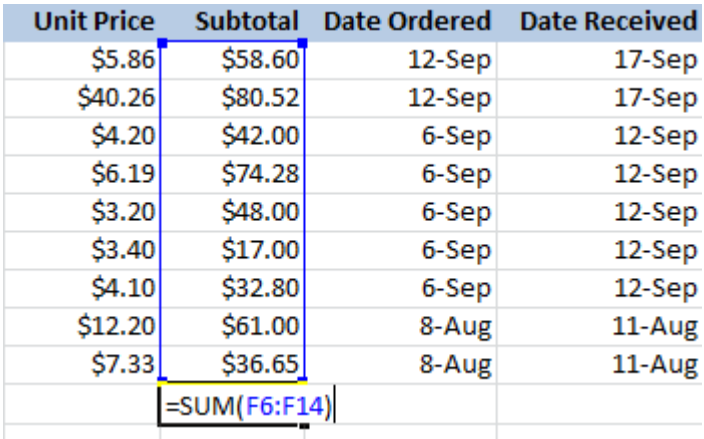
  For example, **=COUNT(C6:C14,C19:C23,C28)** will **count** all the cells in the three arguments that are included in parentheses.

To create a basic function in Excel:

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



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



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

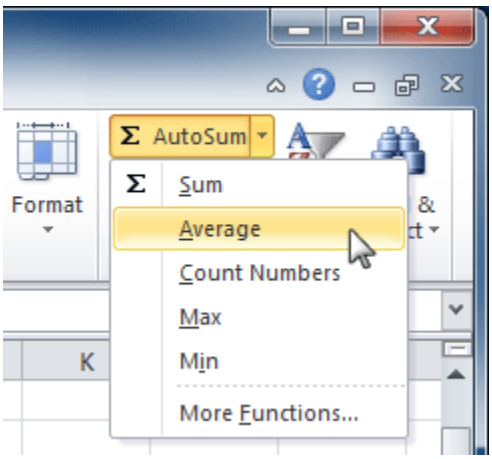
$450.85

Excel **will not always tell you** if your function contains an error, so it's up to you to check all of your functions.

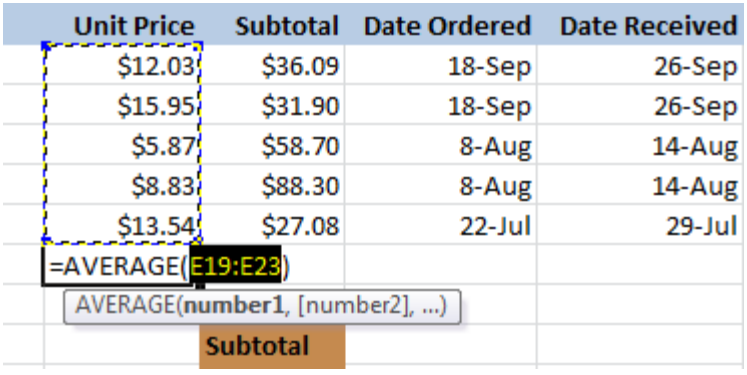
Using AutoSum to select common functions

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 the **Home** tab.
3. In the **Editing** group, click the **AutoSum** drop-down arrow and select the function you want (**Average**, for example).



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



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

$11.24

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

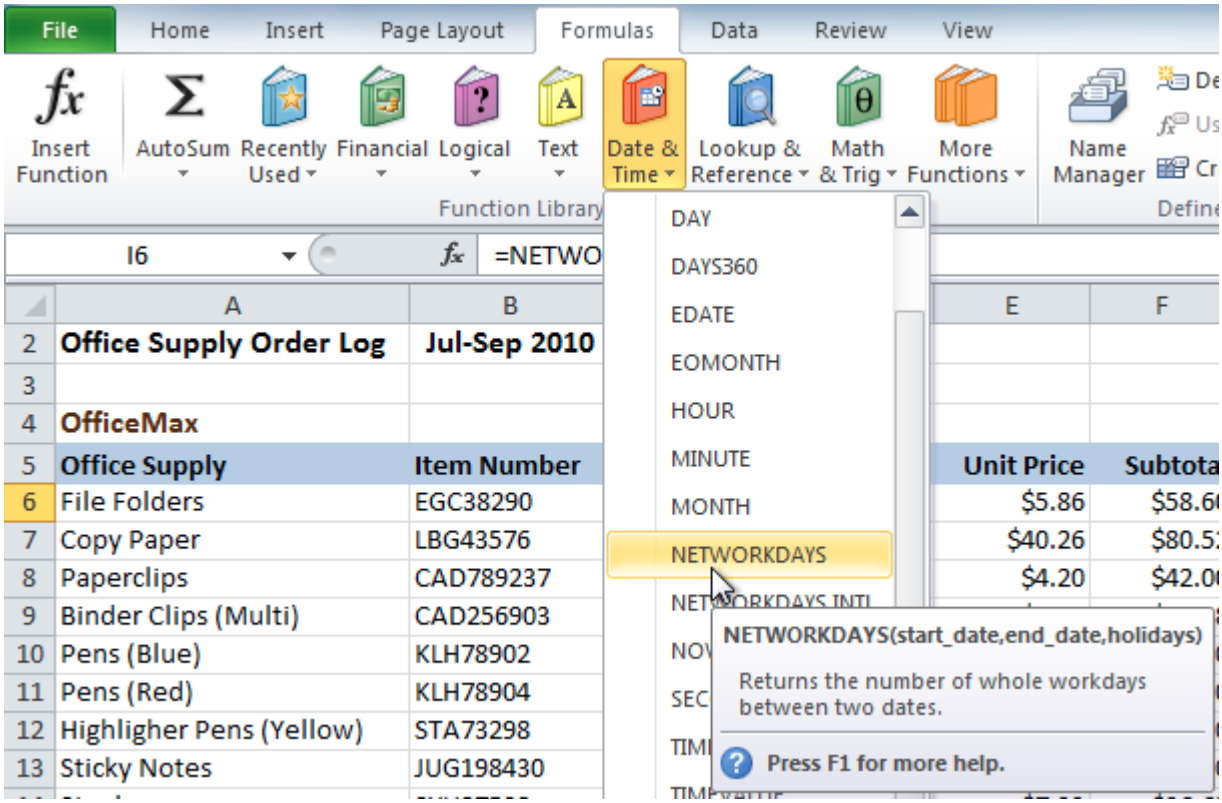
The Function Library

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

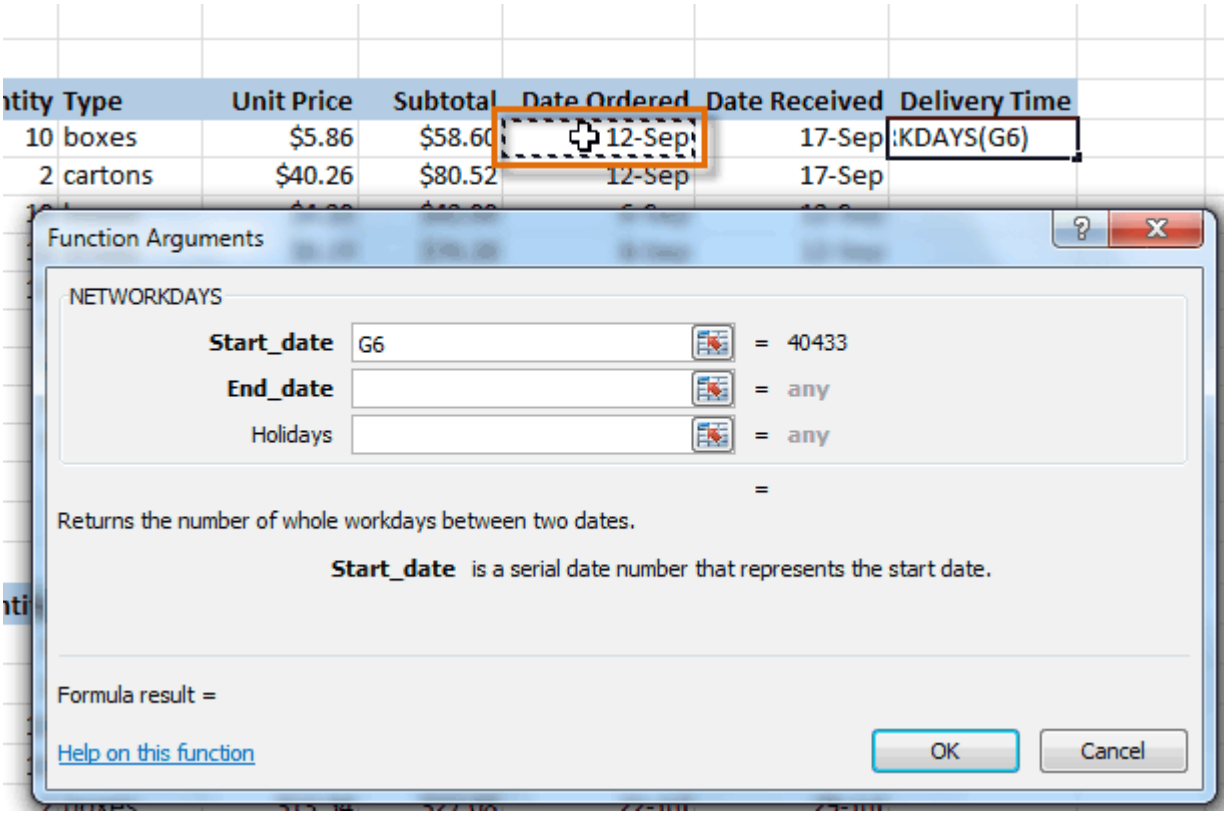
A great place to explore functions is in the **Function Library** on the Formulas tab. Here, you can search and select Excel functions based on categories such as **Financial**, **Logical**, **Text**, and **Date & Time**.

To insert a function from the Function Library:

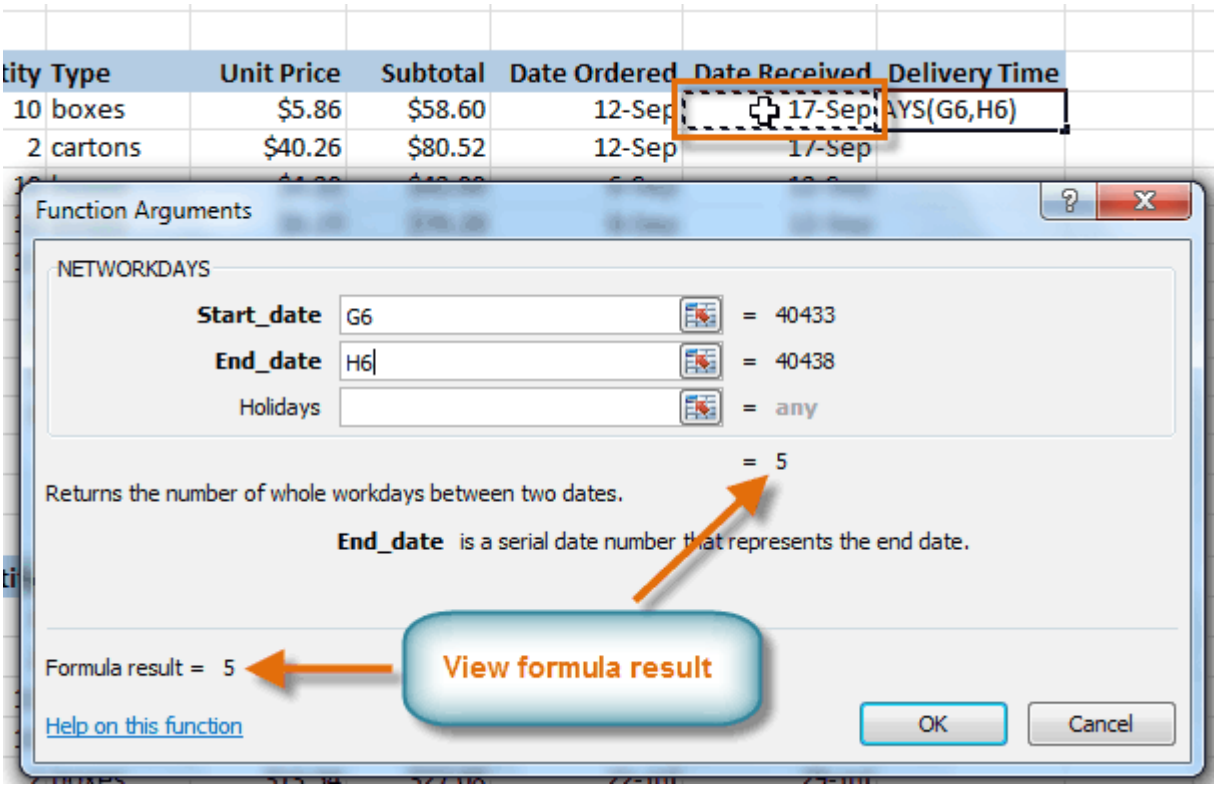
1. Select the cell where the answer will appear (**I6**, for example).
2. Click the **Formulas** tab.
3. From the **Function Library** group, select the **function category** you want. In this example, we'll choose **Date & Time**.
4. Select the desired **function** from the Date & Time drop-down menu.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



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



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



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

Date Ordered	Date Received	
12-Sep	17-Sep	5

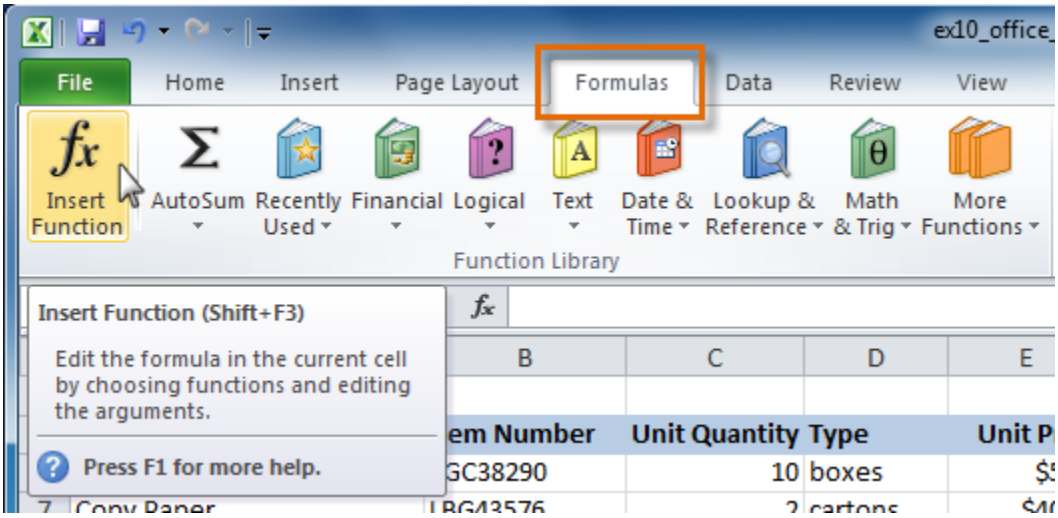
The Insert Function command

The **Insert Function** command is convenient because it allows you to search for a function by typing a description of what you're 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.

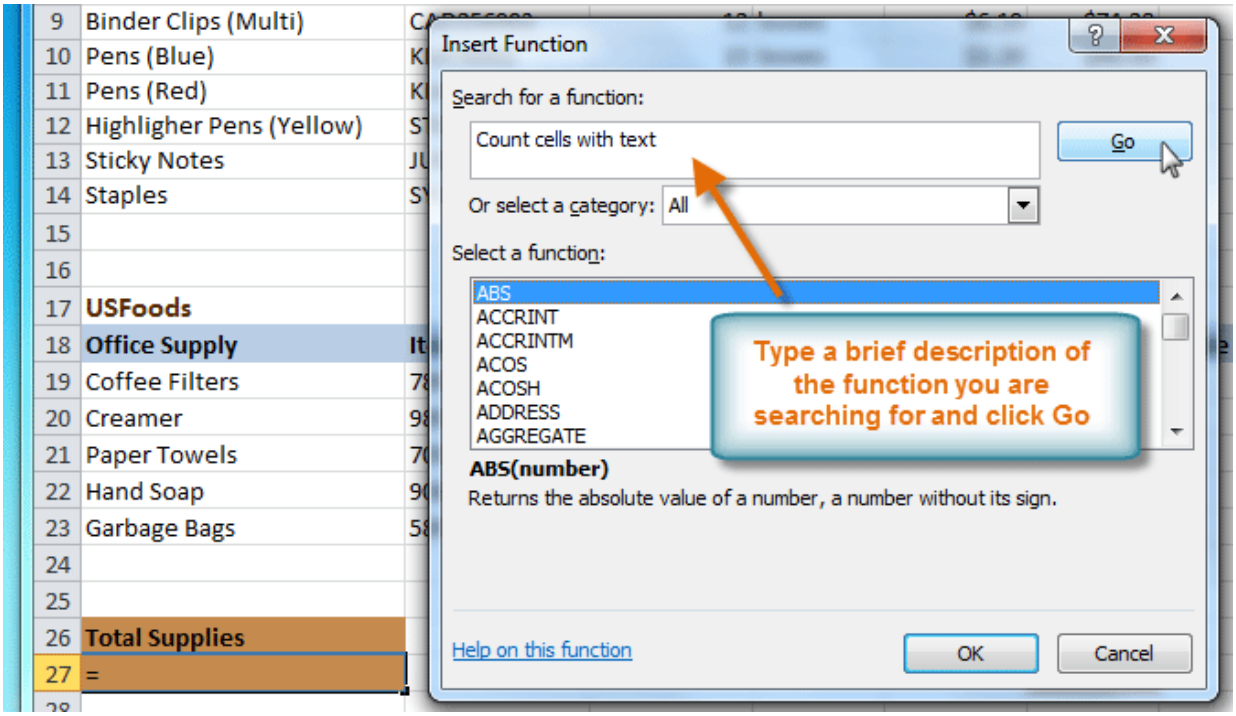
Using the Insert Function command

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'll need to find a formula that counts cells with text.

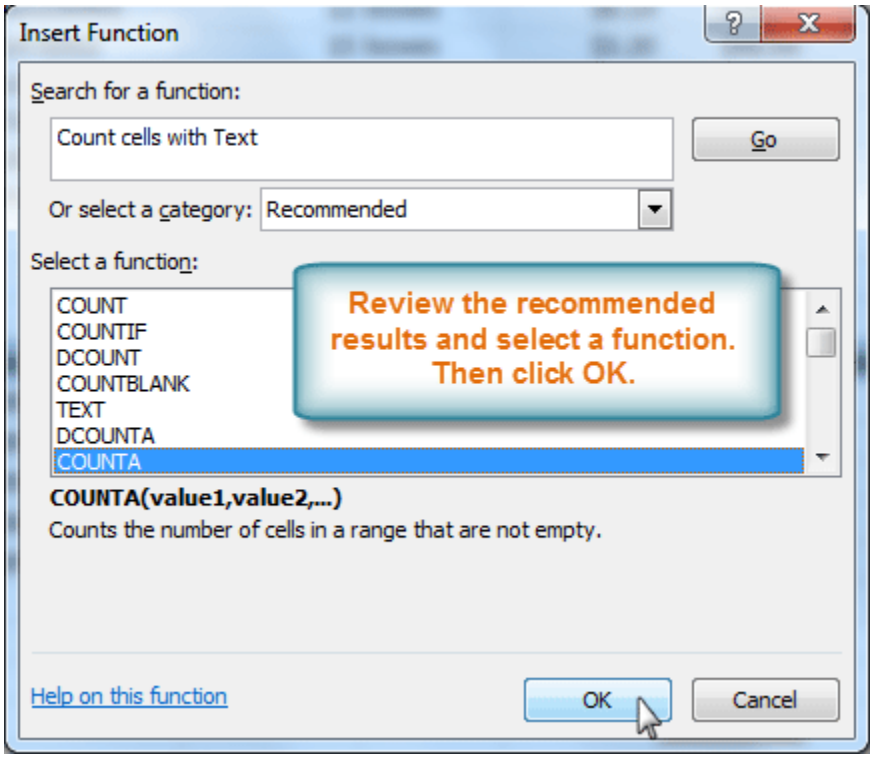
1. Select the cell where the answer will appear (**A27**, for example).
2. Click the **Formulas** tab, then select the **Insert Function** command.



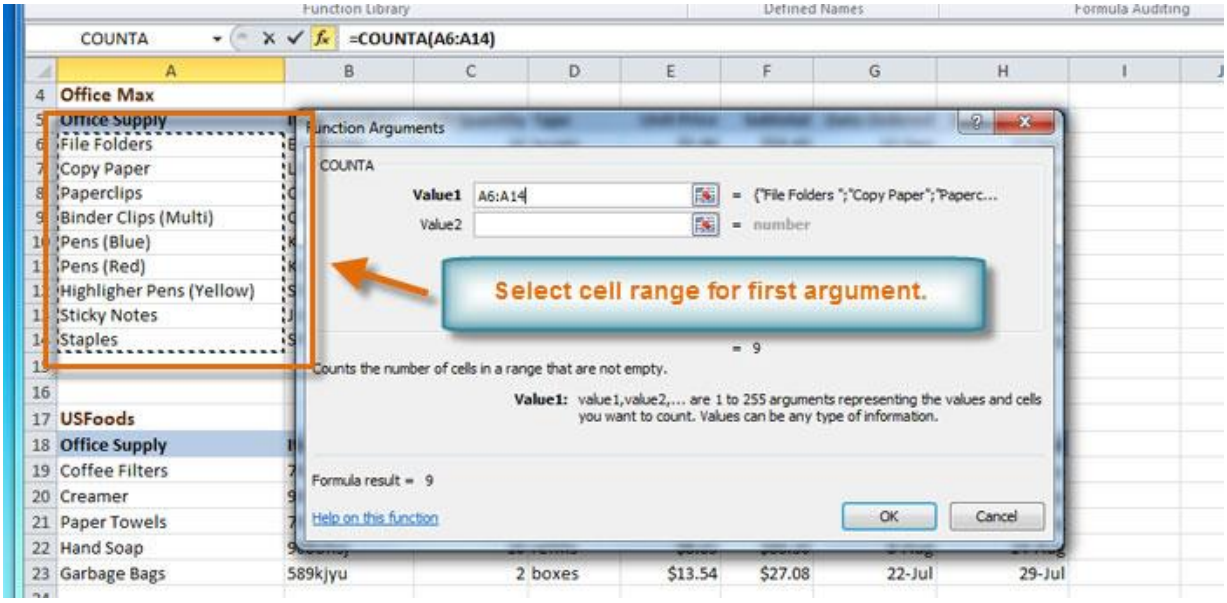
3. The **Insert Function** dialog box will appear.
4. Type a **description** of the function you are searching for, then click **Go (Count cells with text**, for example). You can also search by selecting a category.



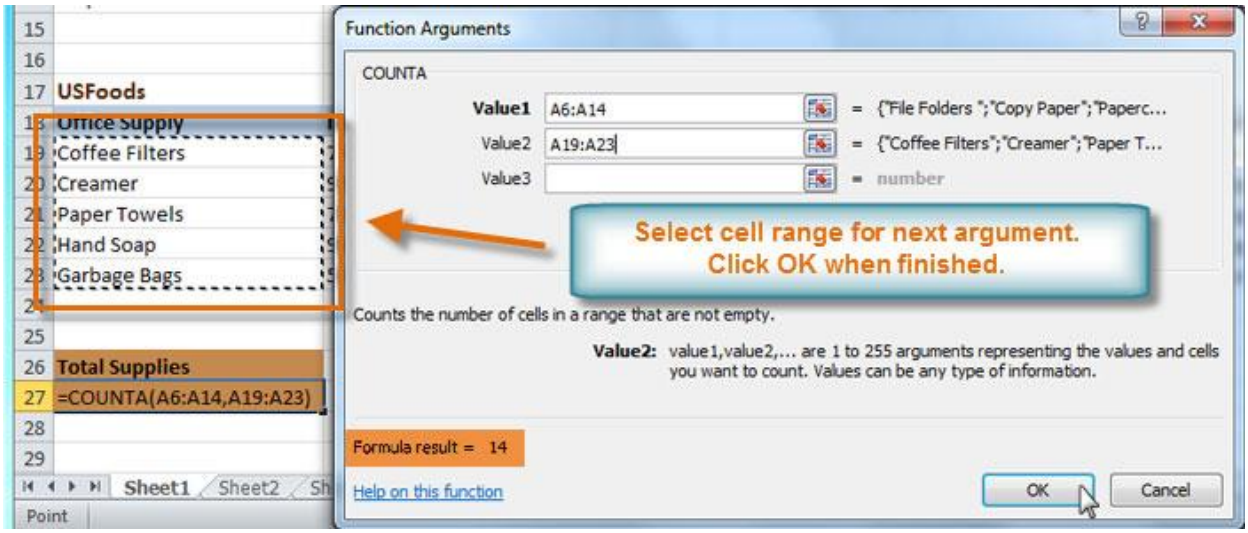
5. Review the results to find the function you want (**COUNTA**, for example). Click **OK**.



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



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



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

Challenge!

1. Open an **existing Excel 2010 workbook**. If you want, you can use Excel2010_Functions_Practice file from moodle.
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.