Microsoft Office: Excel 2013

Intro to Formulas and Basic Functions

University Information Technology Services

Excel 2013

Intro to Formulas & Basic Functions

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Introduction

This booklet is the companion document to the Excel 2013: Intro to Formulas and Basic Functions workshop. It includes and definitions for formulas and functions, and covers the various aspects of creating formulas and the basic functions used in Excel.

Learning Objectives

After completing the instructions in this booklet, you will be able to:

- *Understand what is a formula*
- *Create formulas*
- *Understand what is a function*
- *Use basic functions*
- *Know the difference between formulas and functions*

Functions and Formulas

A formula performs calculations or other actions on the data in your worksheet. A function is a preset formula in Excel. It is important to understand the following information about functions and formulas.

Basic Information

A formula and a function always begins with an equal sign (=). The data Excel will use to calculate a function is enclosed in parentheses (). Formulas do not include parentheses.

How to Specify Individual Cells

When there is a comma (,) between cell references in a function, Excel uses each cell to perform the calculation. For example, the function =SUM (A1, A2, A3) is the same as the formula =A1+A2+A3.

How to Specify a Group of Cells

When there is a colon (:) between cell references in a function, Excel uses the specified cells and all cells between them to perform the calculation. For example, the function =SUM (A1:A3) is the same as the formula =A1+A2+A3.

Common Functions

The following are some common functions used in Excel:

Average – Calculates the average value of a list of numbers.
Max – Finds the largest value in a list of numbers.
Sum – Adds a list of numbers.
Count – Counts the number of items in a list.
Min – Finds the lowest value in a list of numbers.
Round – Rounds a value to a specific number of digits.

Entering a Formula

The following instructions explain how to enter a formula.

1. Click on the cell where you want to enter a formula. This is where the answer will appear. In Figure 1, cell G4 has been selected.
2. Type an equal sign (=) to begin the formula (see cell G5 of Figure 1).
3. Then type the formula (=C5+D5), (see Figure1 on the next page).

Figure 1 – Entering Formulas

4. Press Enter on your keyboard, and the results of the calculation should appear in the selected cell (see Figure 2).
5. To view the formula that you entered, click the cell containing the formula and it will appear in the formula bar (see Figure 2).

Figure 2 – Formula Bar

Editing a Formula

Sometimes you may need to change a formula to include additional cells, remove cells, etc. The following instructions explain how to edit a formula.

1. Click on the cell containing the formula that you would like to edit and the formula will be shown inside the formula (fx) bar at the top (see Figure 3).
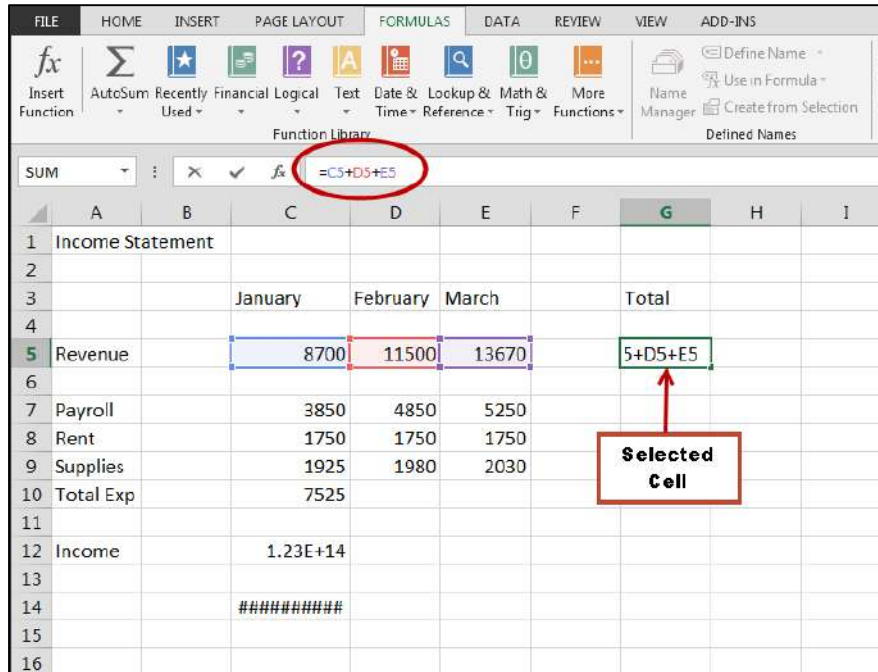2. Click inside the formula bar and make the necessary changes (in Figure 3, E4 was added to the formula).

Figure 3 – Editing a Formula

3. After making the necessary changes, press Enter and the answer will appear in the selected cell (see Figure 4).

Figure 4 – Edited Formula
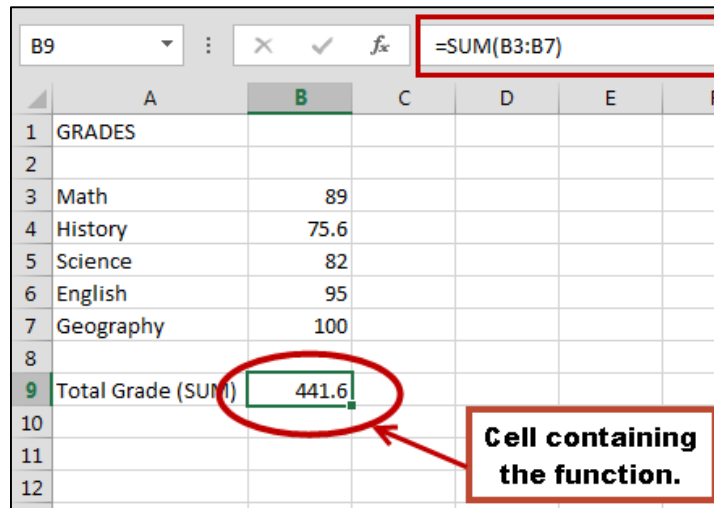
Basic Functions

The following instructions explain how to use the basic functions of Excel.

SUM

Sum – Adds a list of numbers.

Function: =SUM(B3:B7)

Result: 441.6

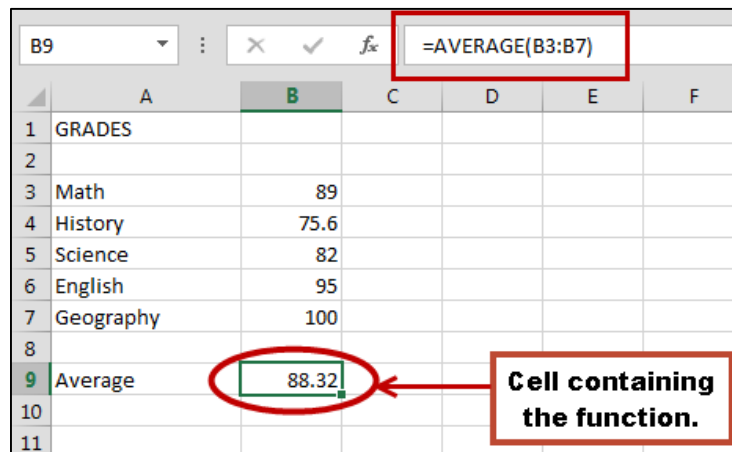*Figure 5 – Entering Functions*

AVERAGE

Average – Calculates the average value of a list of numbers.

Function: = AVERAGE(B3:B7)

Result: 88.32

Figure 6 – Entering Functions

MAX

Max – Finds the largest value in a list of numbers.

Function: = MAX(B3:B7)

Result: 100

Figure 7 – Entering Functions

MIN

Min – Finds the smallest value in a list of numbers.

Function: =MIN(B3:B7)

Result: 75.6

Figure 8 – Entering Functions

COUNT

Count – Calculates the number of values in a list.
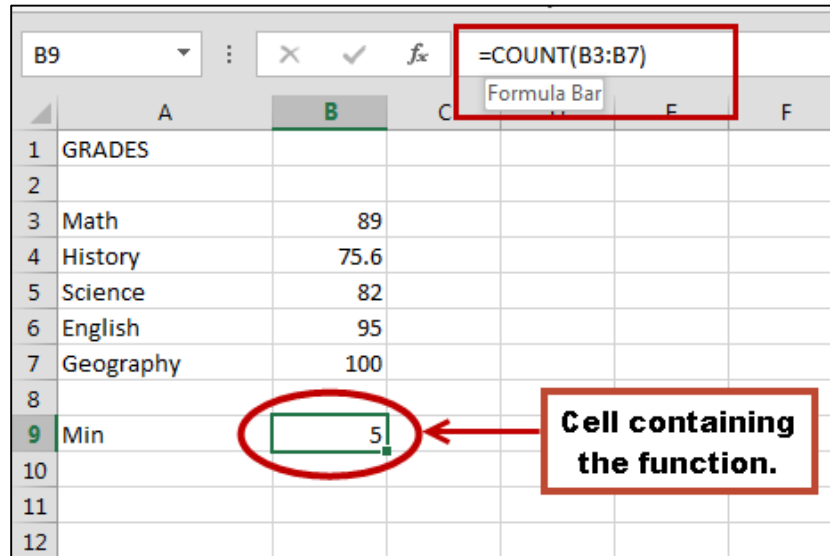
Function: =COUNT(B3:B7)

Result: 5

Figure 9 – Entering Functions

ROUND

Round – Rounds a value to a specific number of digits.

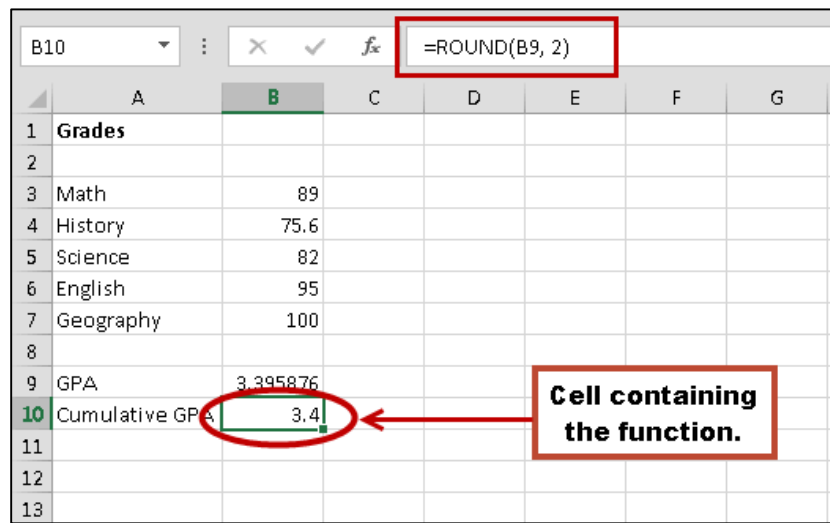Function: =ROUND(B9, 2)

Result: 3.4

Figure 10 – Entering Functions

Entering a Function

Excel helps you enter functions in your worksheet. Functions let you perform calculations without typing long, complex formulas. The following explains how to use functions.

1. Click to select the cell where you want to enter the function on the worksheet.
2. Click the **Paste Function** button on the *Formula Bar* (see Figure 11).
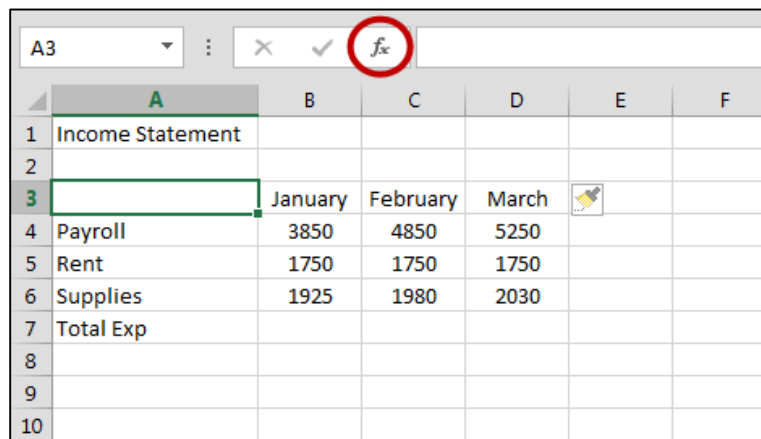

Figure 11 – Formula Bar

3. The *Paste Function* dialog box will appear (see Figure 12). Select the category that contains the function that you want to use (example: SUM) and click OK. **Note**: If you do not know which category contains the function that you want to use, use the Function Search Field to search for the needed function.
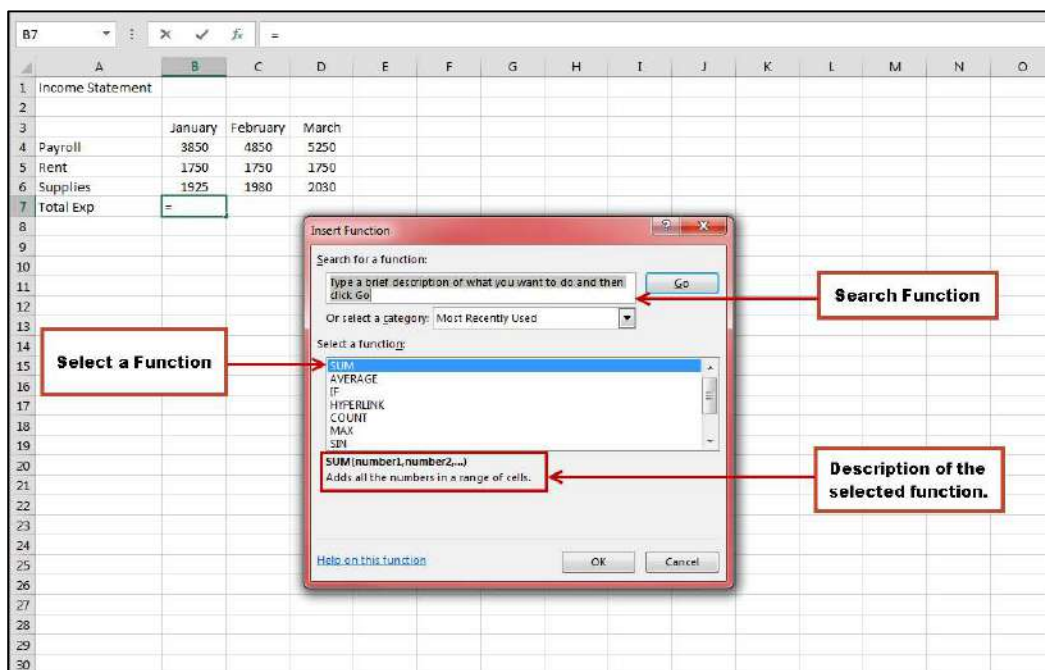

Figure 12 – Insert Function

4. The *Function Arguments* dialog box will appear (see *Figure 13*).
5. Select the cell(s) in the worksheet that contain(s) the number(s) to be used in the formula.
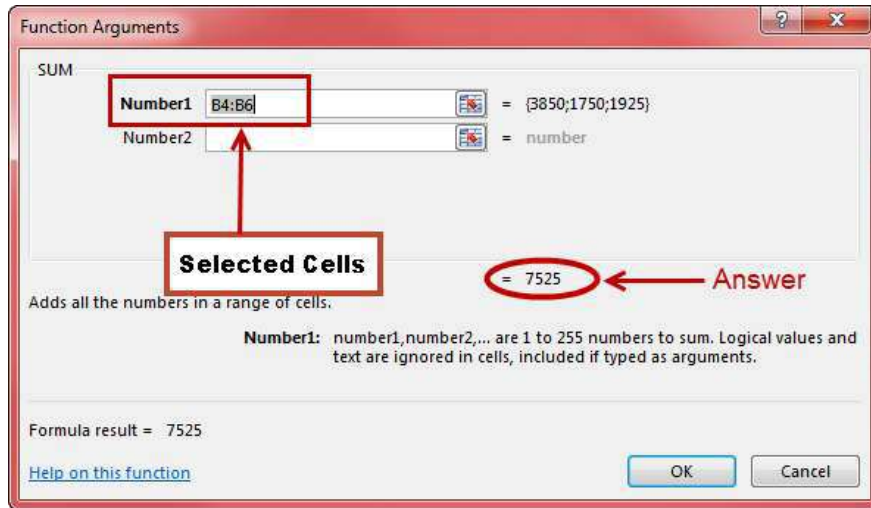6. The Number 1 field now displays the cell reference you selected (see *Figure 13*).

Figure 13 – Function Arguments

7. Click **OK**. The results of the formula will appear in the selected cell.

Auto Calculate

The following instructions explain how to use auto calculate.

1. Select the cells that you want to include in the calculation.
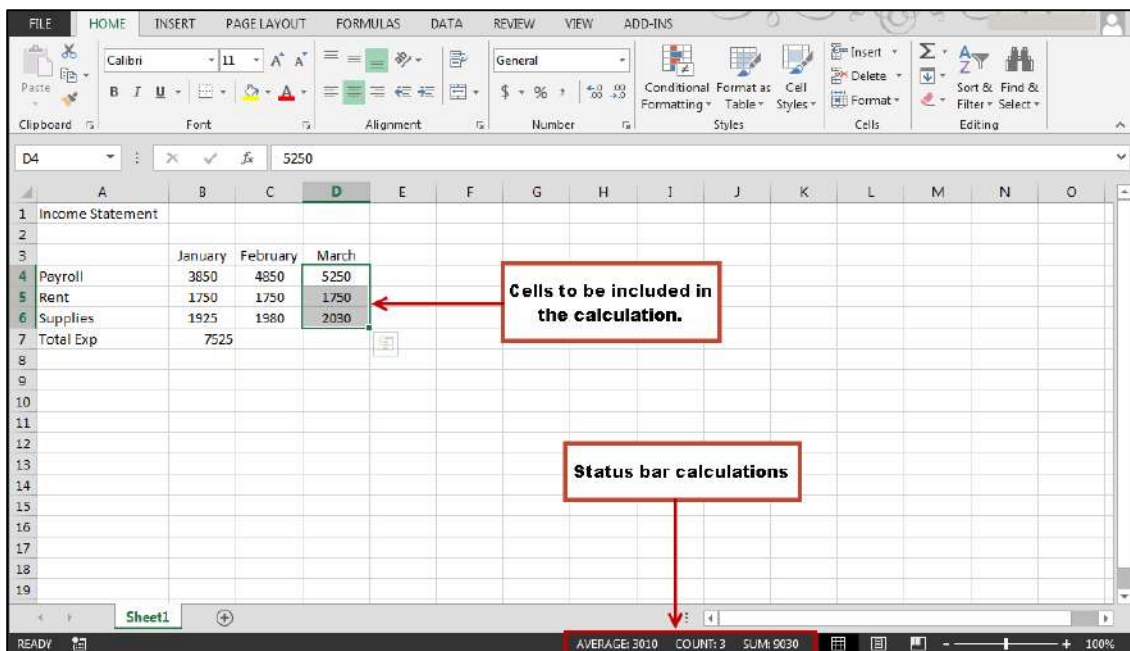2. The status bar will display the Sum and/or the Average of the cells that you selected (see Figure 14).

Figure 14 – Auto-Calculate

3. Other calculations can also appear on the status bar. To see the other calculations available, right-click on the status bar.
4. A list will appear displaying the calculations you can perform (see Figure 15).

Figure 15 – Status bar calculations

5. Select the calculation of your choice.
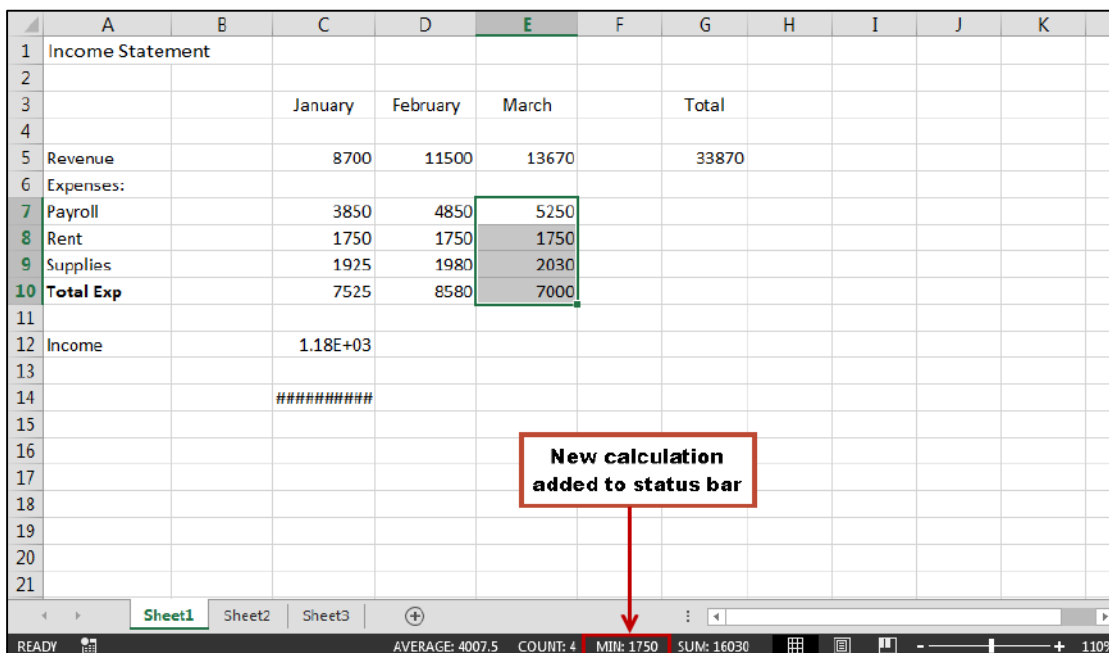6. The results of the calculation will appear in the Auto Calculate area of the status bar (see Figure 16).

Figure 16 – Calculation added to the status bar

AutoSum

The following explains one way to use the AutoSum feature.

1. Click to select the cell where you want the answer to appear.

2. Click the **AutoSum** button located on the Ribbon as shown in Figure 17. **Note**: The AutoSum button is also located on the *Formulas* tab within the *Functions Library* group.
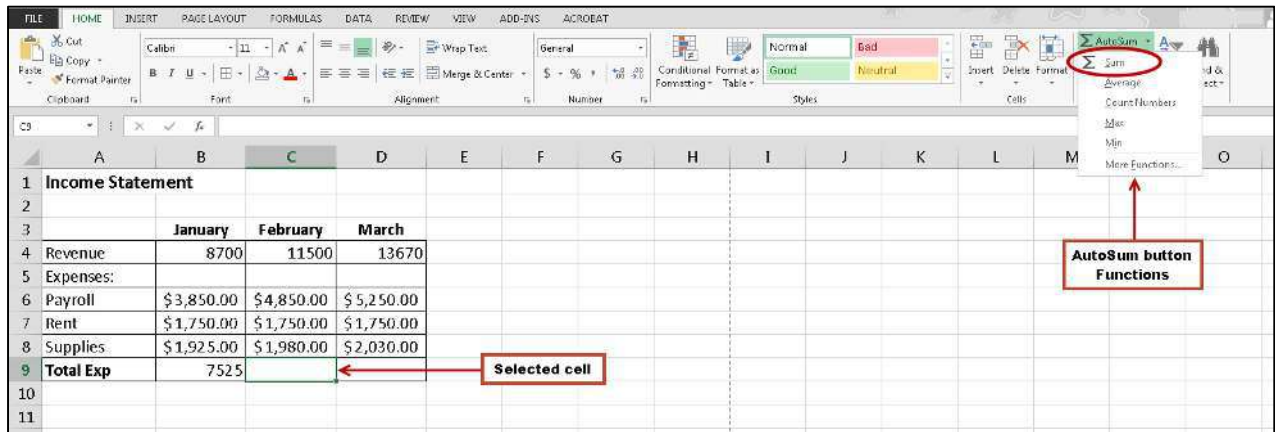3. Select the *Function* of your choice, for example, Sum (see *Figure 17*).

Figure 17 – AutoSum

4. Adjust the highlighted selection box to capture the numbers that need to be manipulated by clicking and dragging one of the corner sizing handle (see *Figure 18* on the next page).
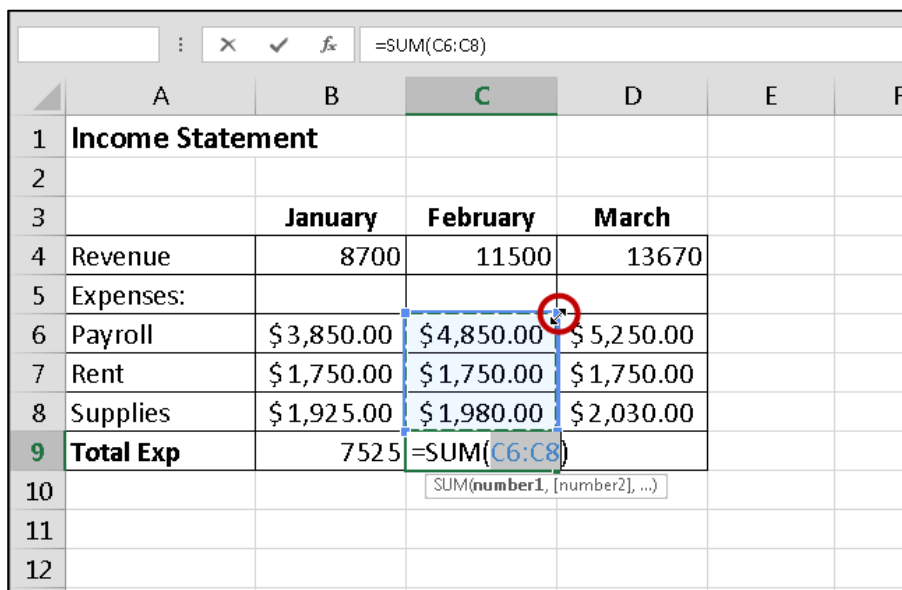

Figure 18 – Selecting numbers

5. Press the *Enter* key to insert the answer.

The following explains a second way to gain the sum of numbers.

1. Click to select the cell where you want the results of the formula to appear (for example, in Figure 19, you might select cell D9).
2. Type the equal sign (=).

3. Choose one of the following methods to enter your formula (see Figure 19):
    a. Type the cell reference (for example, in Figure 19, you might type D6).
    b. Click the cell containing the number that you want to use in your formula (for example, in Figure 19, you might select D6).
4. Type an operator (such as the plus sign (+) for addition).
5. Repeat steps 3 and 4 as often as necessary to build your formula (see Figure 19).

Figure 19 – Accessing the Sum of Numbers

6. Press the Enter key so that the answer appears in the cell.

Additional Assistance

If you need additional assistance with Excel 2013, contact University Information Technology Services (UITS) at:

Faculty and Staff Service Desk
Phone: 470-578-6999
Email: service@kennesaw.edu

Students Help Desk
Phone: 470-578-3555
Email: studenthelpdesk@kennesaw.edu