

Chapter 1

Basic Math in Microsoft Excel

In this chapter, we will learn the following to World Class standards:

- **The Excel Layout**
- **The Ribbon in Excel**
- **Adding in Excel**
- **Subtracting in Excel**
- **Multiplying in Excel**
- **Dividing in Excel**
- **Naming the Worksheet**
- **Saving the File in Excel**

The Excel Layout

Microsoft Excel is an application in the Office Suite, which individuals use to do math and organize data. The most common mathematics done in a spreadsheet is adding, then subtracting, multiplication and division, so anyone learning to utilize the software should understand the basics first. Another feature common in the application is the document's divisions of columns and rows that allow us to arrange information in logical fashion easily. The program also comes with a multitude of functions that help us to reduce the amount of work in handling data. With practice, most people discover they really enjoy working with spreadsheets.

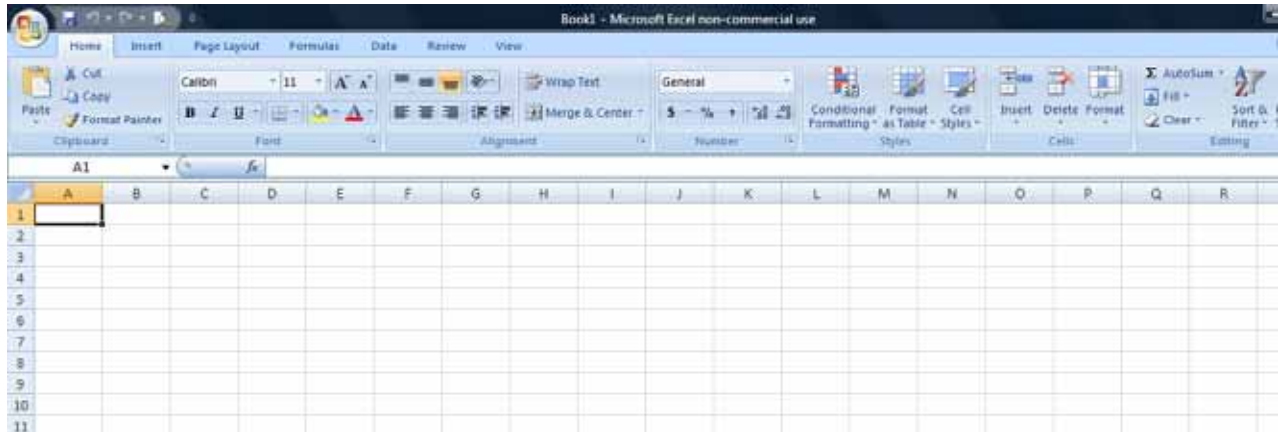


Figure 1.1 – The Excel Spreadsheet

The most identifiable feature of a spreadsheet is the lettered columns {A, B, C, D} and the numbered rows {1, 2, 3, 4}. Each cell has a name that is made using the column letter and the row number. As we can observe in Figure 1.1, the first cell is named A1.

The Ribbon in Excel

The ribbon in Microsoft Excel 2007 has replaced all of the toolbars. Although there were numerous toolbars in the older versions of Microsoft Excel, the ribbon has placed all of the toolbars in one, easy to access space. We will mainly be using the ribbon for formatting and adding borders in our Excel exercises.

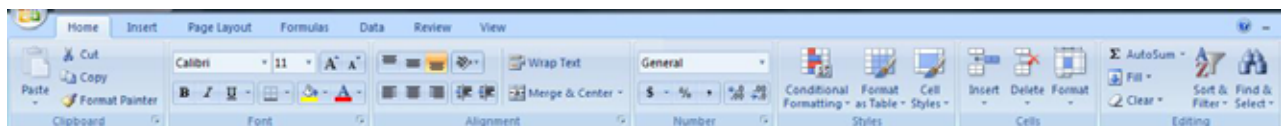


Figure 1.2 – Ribbon in Excel

There are many similarities to the tools we know in Microsoft Word to those we will learn in Microsoft Excel. The tool that is different from ones used in Microsoft is the AutoSum tool. Also, the Currency (\$) tool and the Fill (paint bucket) buttons are different from the formatting tools in word processing. We will utilize these two tools in our second exercise.

Adding in Excel

Adding is the most common mathematical function we do in a spreadsheet.

To add two numbers, we will type 17 in cell A1 and then input 23 in cell B1. In cell C1, we will start with an equal sign, then with our mouse, click on cell A1, press the plus sign (+) on the keypad and then with the mouse, click on cell B1. In the formula bar, we see “=A1+B1”.

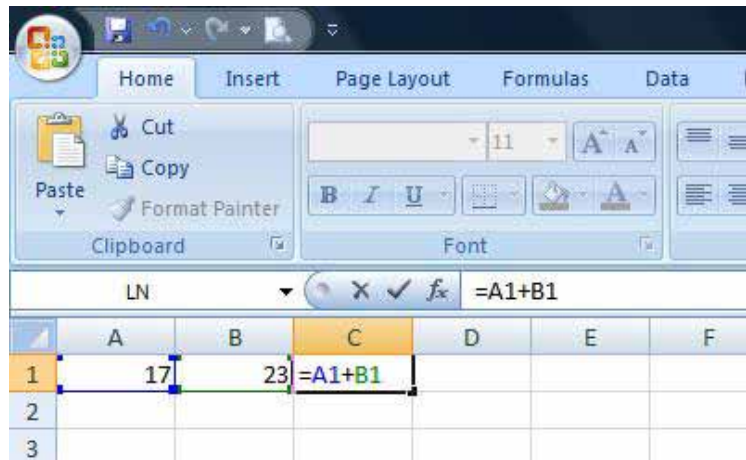


Figure 1.3 – Adding in Excel

Press the Enter key on the keyboard and 40 appears in the cell as shown in Figure 1.4. Adjust the number 23 in cell B1 to 31 as shown in Figure 1.5 and the answer in cell C1 changes to 48. This is a vital feature in a spreadsheet.

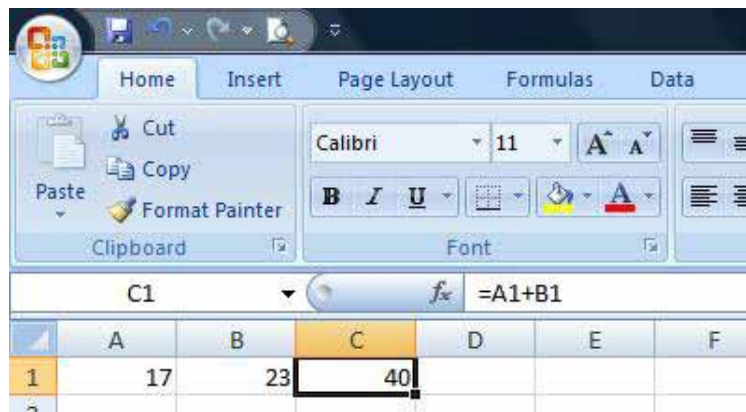


Figure 1.4 – The Adding Result in Cell C1

To add two more numbers, we will type -10 in cell A2 and then key in 15 in cell B2. In cell C2, we type an equal sign, then with the mouse, click on cell A2, press the plus sign (+) on the keypad and then with the mouse, click on cell B2. In the formula bar, we see “=A2+B2”.

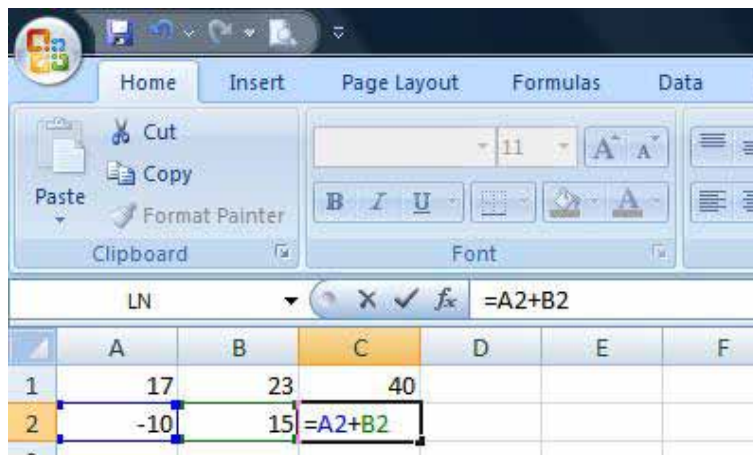


Figure 1.5 – Adding 2 More Numbers

Press the Enter key on the keyboard and 5 appears in the cell C2.

For practice, input the following data into the spreadsheet. The formulas are shown in column C.

	A	B	C
3	125	32.5	=A3+B3
4	17.5	-2.5	=A4+B4
5	0.25	0.375	=A5+B5

Subtracting in Excel

Next, we will learn how to subtract numbers in a spreadsheet. To subtract a number from another number in Excel, we will type 32 in cell A10 and then input 48 in cell B10.

In cell C10, we will start with an equal sign, then with our mouse, click on cell A10, press the minus sign (-) on the keypad and then with the mouse, click on cell B10. In the formula bar in Figure 1.6, we see “=A10-B10”.

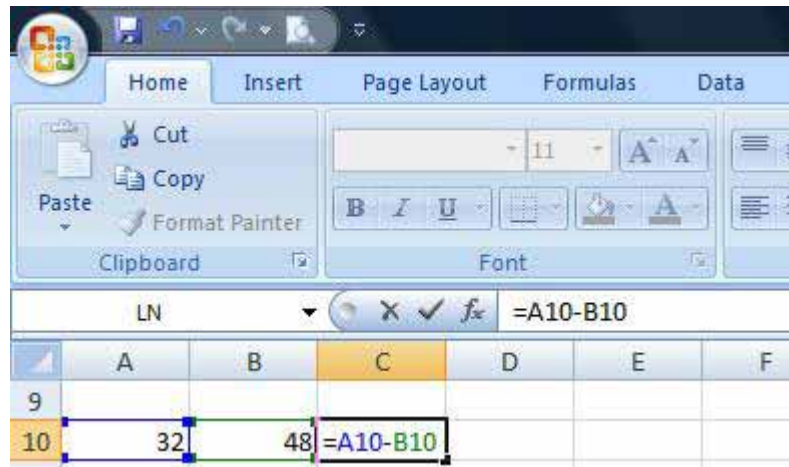


Figure 1.6 – Subtracting in Excel

Press the Enter key on the keyboard and -16 appears in the cell C10 as shown in Figure 1.7.

To subtract one more quantity from a different number in Excel, we will type 564 in cell A11 and then input 321 in cell B11.

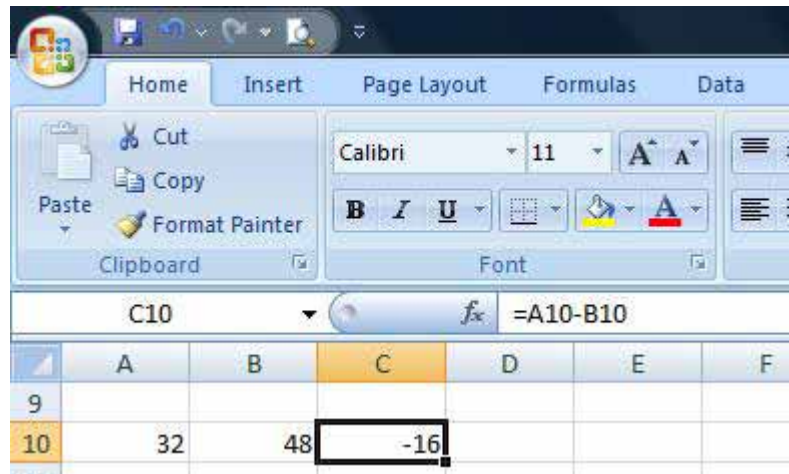


Figure 1.7 – The Subtracting Result in Cell C10

In cell C11, we type an equal sign, then with the mouse, click on cell A11, press the minus sign (-) on the keypad and then with the mouse, click on cell B11. In the formula bar, we see “=A11-B11”. Press the Enter key on the keyboard and we see that the answer is 243.

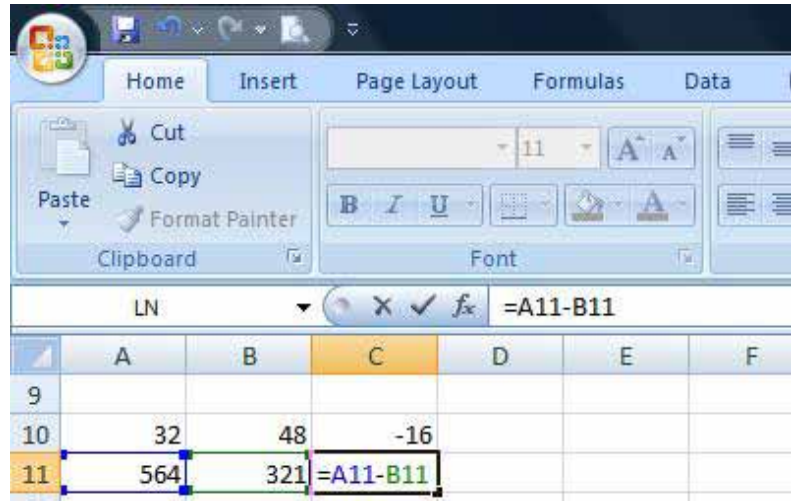


Figure 1.8 – Subtracting More Numbers in Excel

For practice, input the following data into the spreadsheet. The formulas are shown in column C.

	A	B	C
12	1025	248	=A12-B12
13	-125	250	=A13-B13
14	0.85	0.4	=A14-B14

Multiplying in Excel

Although adding and subtracting multiple numbers together is a simple task, we continue with our training and we will learn to multiply in Microsoft Excel.

To multiply two numbers, we will type 56 in cell A20 and then input 2.5 in cell B20. In cell C20, we will start with an equal sign, then with our mouse, click on cell A20, press the asterisk (*) on the keypad for multiplication and then with the mouse, click on cell B20.

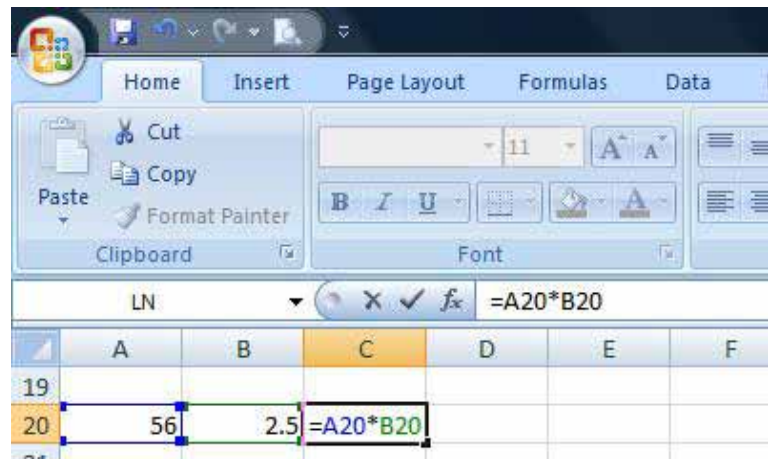


Figure 1.9 – Multiplying Numbers in Excel

In the formula bar, we see “=A20*B20”. Press the Enter key on the keyboard and 140 appears in the cell as shown in Figure 1.10.

To multiply more numbers in Excel, we will type -2.16 in cell A21 and then input 15 in cell B21.

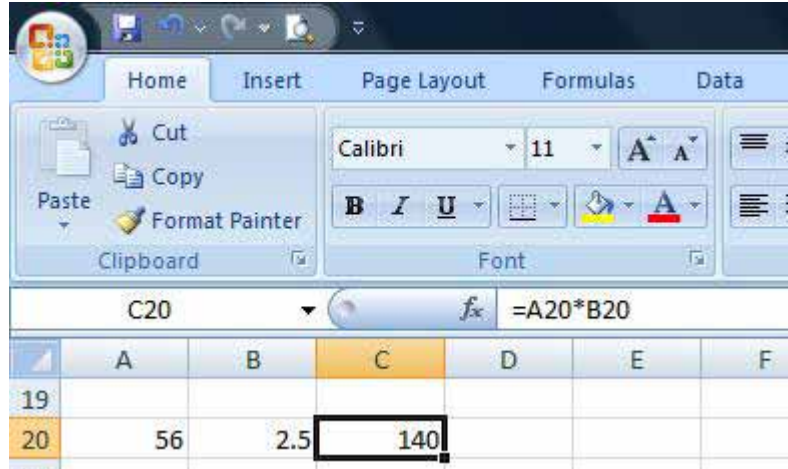


Figure 1.10 – Obtaining the Answer in Cell C20

In cell C21, we type an equal sign, then with the mouse, click on cell A21, press the asterisk (*) on the keypad and then with the mouse, click on cell B21. In the formula bar, we see “=A21*B21”. Press the Enter key on the keyboard and we see that the answer is a negative 32.4.

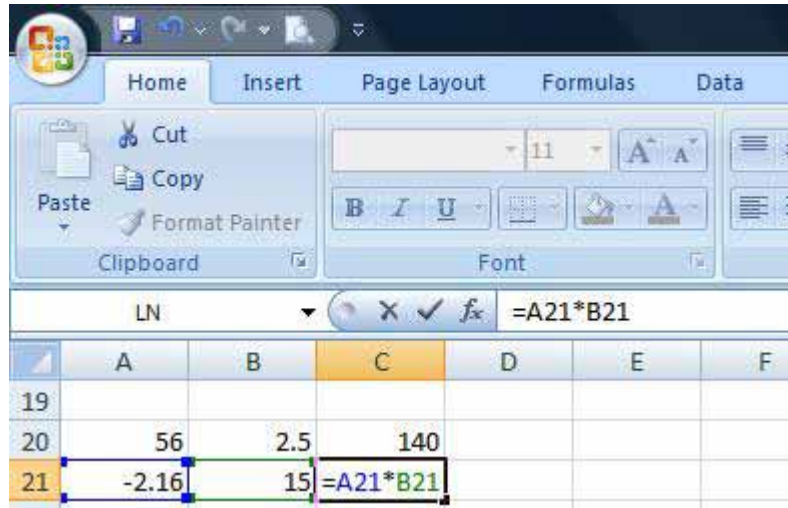


Figure 1.11 – Multiplying More Numbers in Excel

For practice, input the following data into the spreadsheet.

	A	B	C
22	65	3.75	=A22*B22
23	-42.6	-32	=A23*B23
24	0.1	0.23	=A24*B24

Dividing in Excel

When we add, subtract or multiply in a spreadsheet, we always will get a workable mathematical answer. However, when we divide one number by another number, if the divisor is zero, we will not get a numeric answer, we will get the “#DIV/0!” comment. In later lessons, we will add a logical expression that will check for divisors that are zero. In this exercise, our divisors will be valid.

To divide one number into another number, we will type 25 in cell A30 and then input 2 in cell B30. In cell C30, we will start with an equal sign, then with our mouse, click on cell A30, press the forward slash (/) on the keypad for division and then with the mouse, click on cell B30.

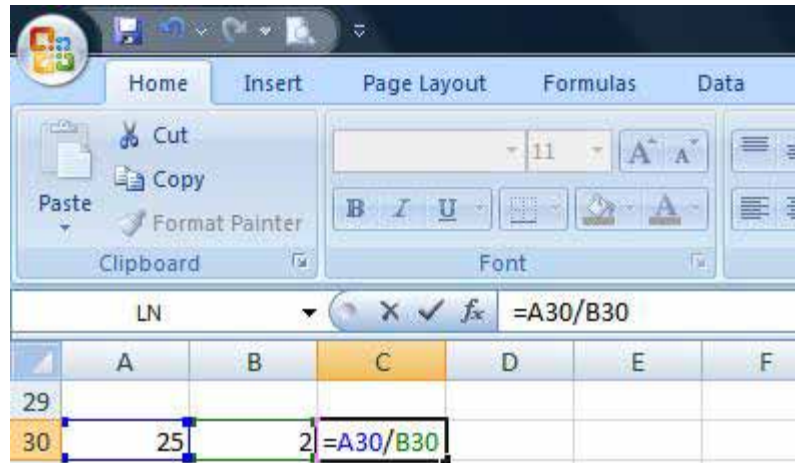


Figure 1.12 – Dividing Numbers in Excel

In the formula bar, we see “=A30/B30”. Press the Enter key on the keyboard and 12.5 appears in the cell as shown in Figure 1.13.

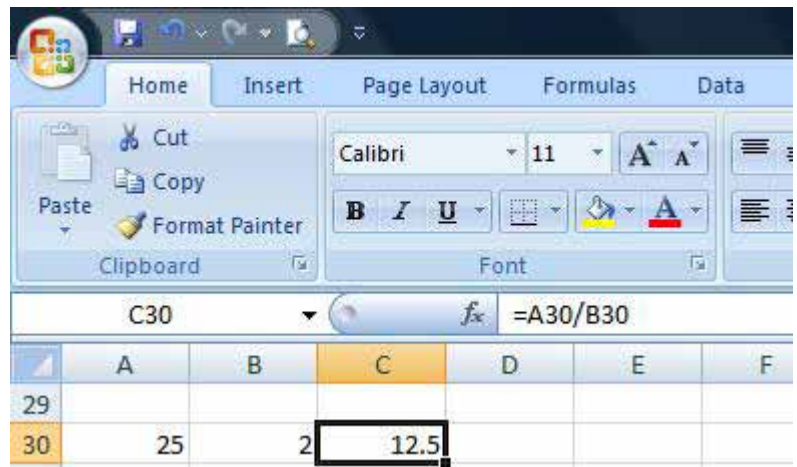


Figure 1.13 – The Answer in Cell C30

To divide more numbers in Excel, we will type -2.16 in cell A31 and then input 15 in cell B31.

In cell C31, we type an equal sign, then with the mouse, click on cell A31, press the forward slash (/) on the keypad and then with the mouse, click on cell B31. In the formula bar, we see “=A31/B31”. Press the Enter key on the keyboard and we see that the answer is a negative 0.84.

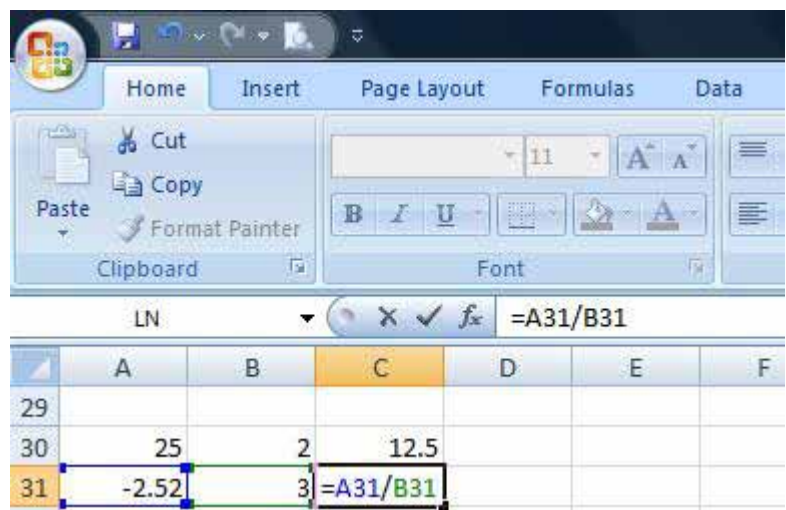


Figure 1.14 – Dividing More Numbers in Excel

For practice, input the following data into the spreadsheet. The formulas are shown in column C.

	A	B	C
32	48	4	=A32/B32
33	-23.4	6	=A33/B33
34	0.375	0.1	=A34/B34

Naming the Worksheet

When we open a new spreadsheet, we see the standard three worksheets in the workbook, Sheet1, Sheet2 and Sheet3. When we finish our first worksheet showing adding, subtracting, multiplying and dividing, we want to rename Sheet1 to Basic Math. Right click on Sheet1 and select Rename from the menu as shown in Figure 1.15. Type Basic Math for the new sheet name.

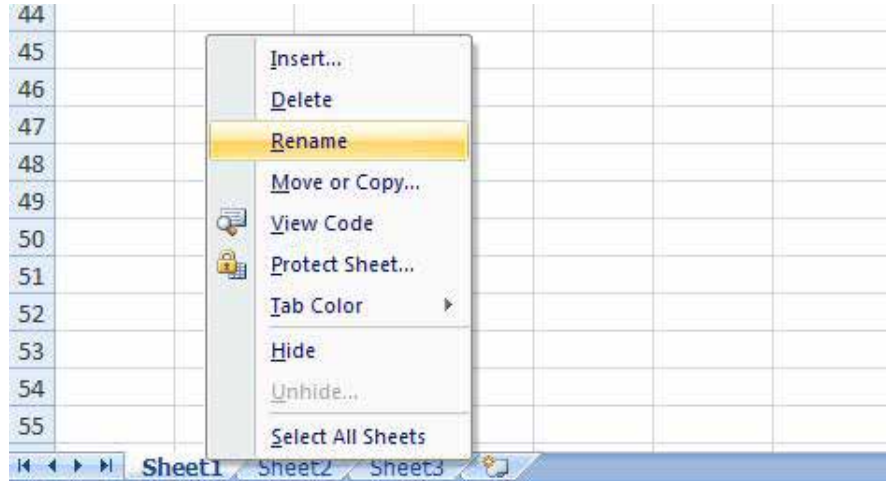


Figure 1.15 – Renaming a Worksheet in Excel

In Figure 1.16, “Basic Math” is now the name of the worksheet. We should always rename the worksheets, so that other users can easily identify a particular one in a workbook.

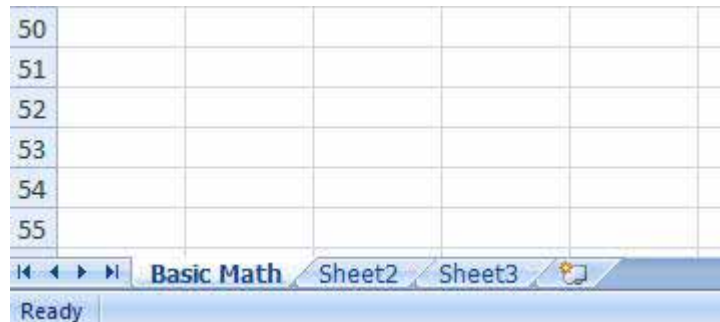


Figure 1.16 – The Basic Math Worksheet in Excel

We can also add more worksheets to the workbook by selecting Insert Worksheet tool on the bottom of the spreadsheet to the right of the other worksheets. A new worksheet, Sheet4 will appear in the workbook.



Figure 1.17 – Inserting a New Worksheet in Excel

Even though there are more sophisticated mathematical functions in Microsoft Excel, we need to always begin our training with basic concepts and with basic tools. After completing this simple exercise, we will learn about organizing and graphing data.

Saving the File in Excel

To save the Microsoft Excel file on our computer's hard drive or our Flash drive, we select Office Button on the Menu Bar. Now, we should choose Save or press Ctrl + S to open the Save As Window. My Documents is the default folder where the Excel spreadsheet is saved.



Figure 1.18 – Saving the File in Excel

We can change the folder location by selecting another folder in the Save In list box. We made a new folder called “wcc excel” using the Create New Folder button. We type “Basic Math” for the file name and press the Save command button as shown in Figure 1.19.

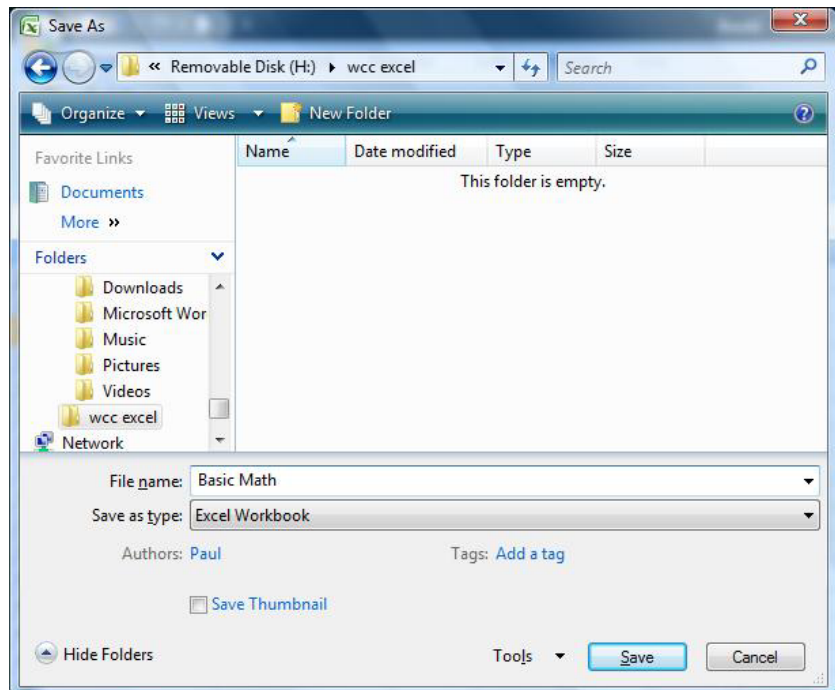


Figure 1.19 – The Save As Window in Excel

*** World Class CAD Challenge 27-1 * - Create a new spreadsheet with 5 adding, 5 subtracting, 5 multiplication and 5 dividing formulas. Name the worksheet Basic Math. Complete the task in 15 minutes.**

Continue this drill four more times on different worksheets in this workbook and each time completing the drill in less than 15 minutes to maintain your World Class ranking.