

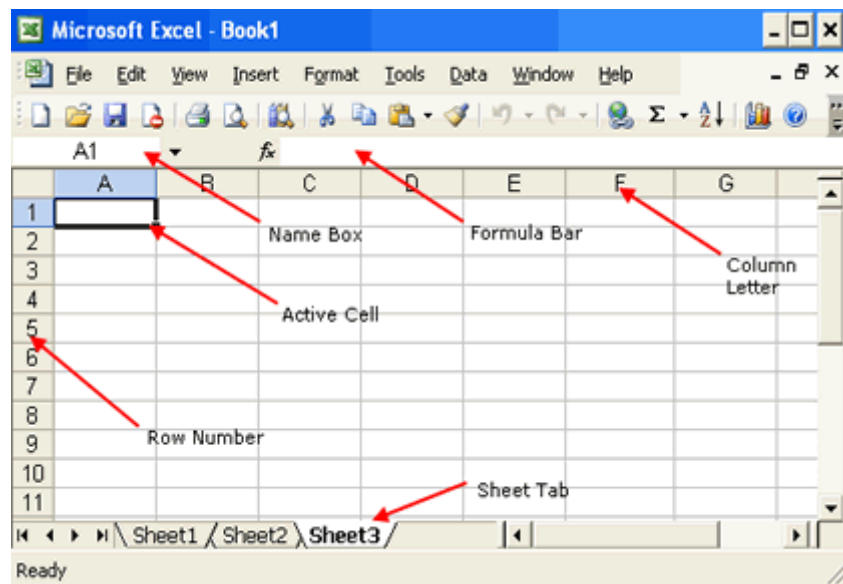
Microsoft Excel (vocabulary)

Excel is an electronic **spreadsheet program** that can be used for storing, organizing and manipulating **data**.

When you look at the Excel **screen** you see a rectangular table or **grid** of **rows** and **columns**. The horizontal rows are identified by numbers (1,2,3,...) and the vertical columns with letters of the alphabet (A,B,C...). For columns beyond 26, columns are identified by two or more letters such as AA, AB, AC.

The intersection point between a column and a row is a small rectangular box known as a **cell**. A cell is the basic unit for **storing** data in the spreadsheet. Because an Excel spreadsheet contains thousands of these cells, each is given a cell reference or address to identify it.

The **cell reference** is a combination of the column letter and the row number such as A3, B6, AA345.



Active Cell

In a worksheet, the cell with the **black outline**. Data is always entered into the active cell.

Column Letter

Columns **run** vertically on a worksheet and each one is identified by a letter in the column header.

Formula Bar

Located above the worksheet, this area displays the contents of the active cell. It can also be used for **entering** or **editing** data and formulas.

Name Box

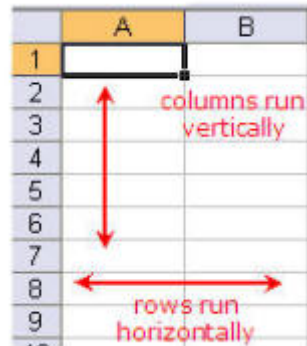
Located next to the formula bar, the Name Box displays the cell reference or the name of the active cell.

Row Number

Rows run horizontally in an Excel worksheet and are identified by a number in the row header.

Sheet Tab

Switching between worksheets in a Microsoft Excel file is done by **clicking** on the sheet tab at the bottom of the screen.



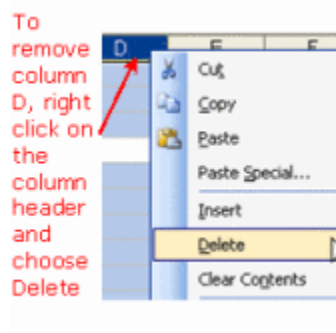
Rows run horizontally in an Excel worksheet. They are identified by a number in the row header.

In Excel 2003, there are 65,536 rows in each worksheet. In Excel 2007, there are more than one million rows.

The intersection point between a row and a column is a cell.

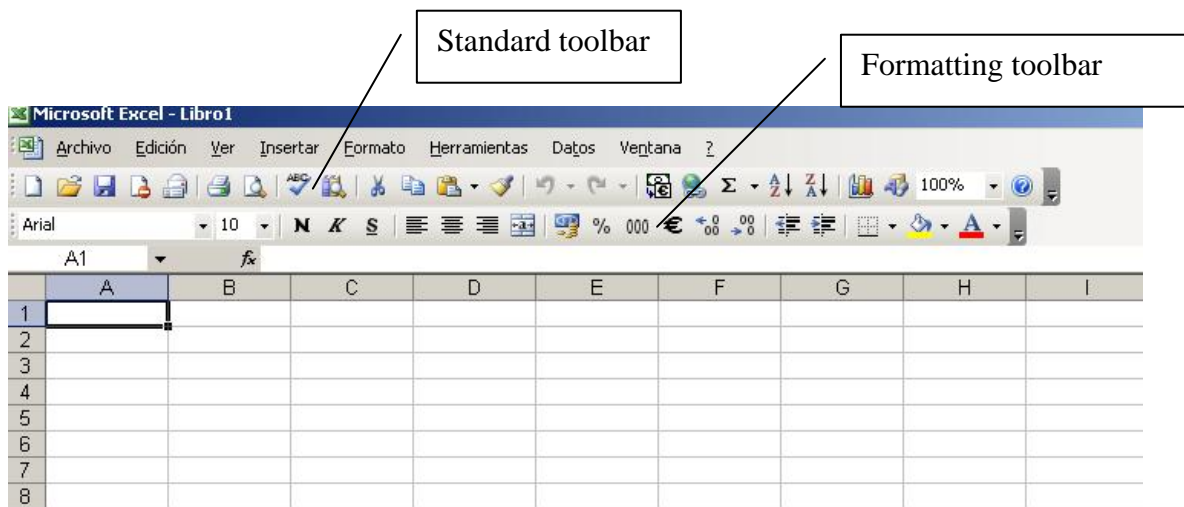
Cells are the basic storage unit for data in a spreadsheet.

There is more than one way to **add** and **delete** columns and rows in Excel. These instructions show you how to add and delete rows or columns by **right clicking** on the **row header** or **column header**.



The column and row headers are the gray **bars** along the top and left **edges** of the worksheet that contain the column letters and row numbers.

When you first open Excel, there are, by default, two toolbars visible above the worksheet area - the **Standard toolbar** and the **Formatting toolbar**. These toolbars contain many of the **commands** that you will use in Excel on a regular basis.



Data Types, Formulas, and Functions

The types of data that a cell can **hold** include numbers, text or formulas. Just as in math class, **formulas** are used for calculations usually **involving** data contained in other cells. Excel and other electronic spreadsheets include a number of **built in** formulas used for common **tasks** known as **functions**.

Excel and Financial Data

Spreadsheets are often used to store financial data. Formulas and functions that are used on this type of data include:

- Performing basic mathematical operations such as **summing** columns and rows of figures.
- Finding values such as **profit** or **loss**.
- Calculating repayment plans for **loans** or **mortgages**.
- Finding the **average**, maximum, or minimum values in a specified range of data.

Excel's Other Uses

Other common operations that Excel can be used for include:

- **graphing** or **charting** data to assist users in identifying **data trends**.
- **sorting** and **filtering** data to find specific information.

The information **garnered** in a spreadsheet can easily be incorporated into electronic presentations, web pages, or printed off in report form.

Formulas in Excel

Formulas in Excel must be preceded by the symbol =. The most common operations used in formulas are:

Addition: +

Subtraction: -

Multiplication: *

Division: /

Powers: ^

Roots: **RAIZ()**

EXCEL EXERCISE: Pythagorean triples

The set of positive integers $\{a, b, c\}$ is a *Pythagorean triple* if it obeys the rule: $a^2 + b^2 = c^2$.

For example: $\{3, 4, 5\}$, $\{5, 12, 13\}$ are Pythagorean triples.

The ancient Greeks found out that Pythagorean triples can be generated using the formulas: $\{X^2 - Y^2, 2XY, X^2 + Y^2\}$, where X, Y are positive integers and $X > Y$.

Spreadsheets can quickly generate Pythagorean triples using such formulas:

Open a new worksheet on Excel and enter the following as shown:

	A	B	C	D	E	F	G
1	Values	X= 3					
2		Y= 2					
3							
4	Legs	$X^2 - Y^2 =$	$=C1^2-C2^2$				
5		$2XY=$	$=2*C1*C2$				
6	Hypotenuse	$X^2 + Y^2 =$	$=C1^2+C2^2$				
7							
8	Triple	$(a, b, c) = ($	$=C4$	$=C5$	$=C6$	$)$	
9							
10							
11							
12	Proof	$a^2 + b^2 =$	$=C4^2+C5^2$				
13		$c^2 =$	$C6^2$				
14							
15							
16							

- Text in columns A and B.
- X and Y values in cells C1 and C2.
- Formulas in columns C, D, E.

Every time you enter a pair of numbers in cells C1 and C2, the spreadsheet works out the new triple, and checks that those number verify Pythagoras' theorem.

Be sure that both X and Y are positive integers and $X > Y$!!