

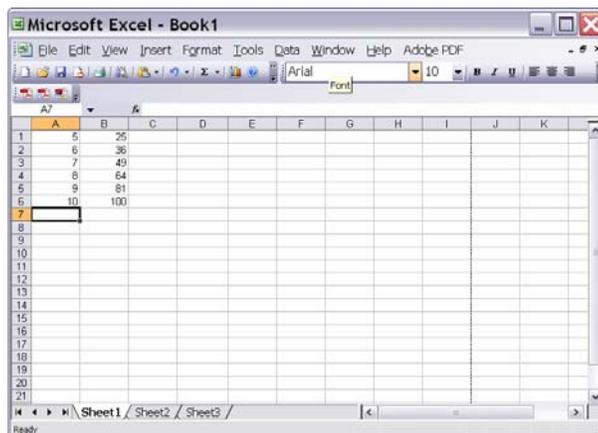
Brief Tutorial on Using Excel to Draw an X-Y Plot

The following tutorial is based on using Windows Office 2003. Earlier versions work similarly, but you may find the placement of controls on the menu to be slightly different.

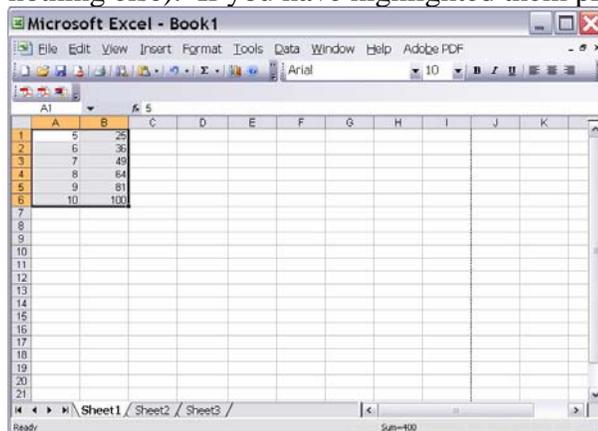
1. Open Excel
2. For our tutorial, we will plot the data:

(5,25), (6, 36), (7,49), (8,64), (9,81), (10,100)

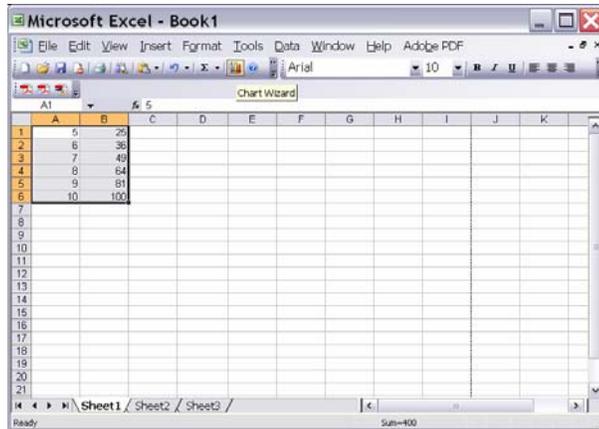
For the first entry (5, 25), enter x-coordinate in column A, row 1 and enter the y-coordinate in B1. Repeat for the other five points. Your Excel window should look like this:



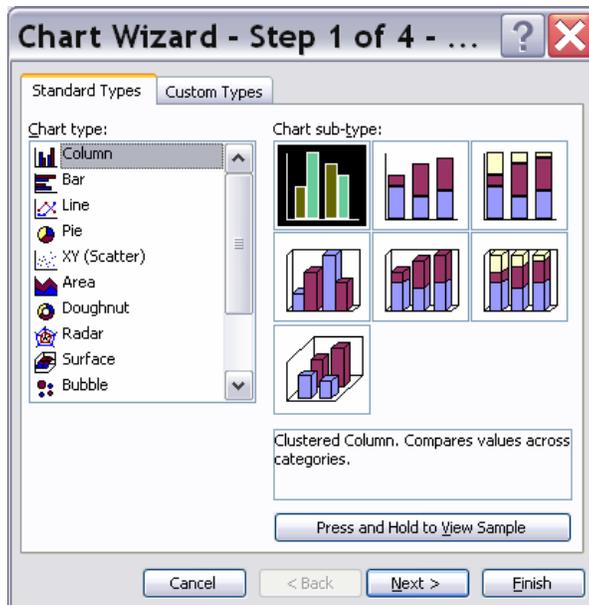
2. Use your cursor to highlight the columns and rows of data you want to plot (and nothing else). If you have highlighted them properly, they should look like:



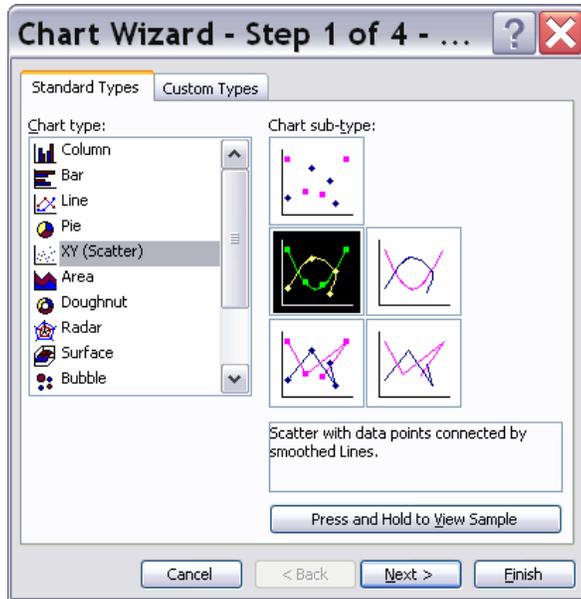
4. Drag down the Chart Wizard. If you have chart wizard icon on your menu bar, as shown below, just click on it. Otherwise, drag down **Insert** until you get to **Chart...** and release.



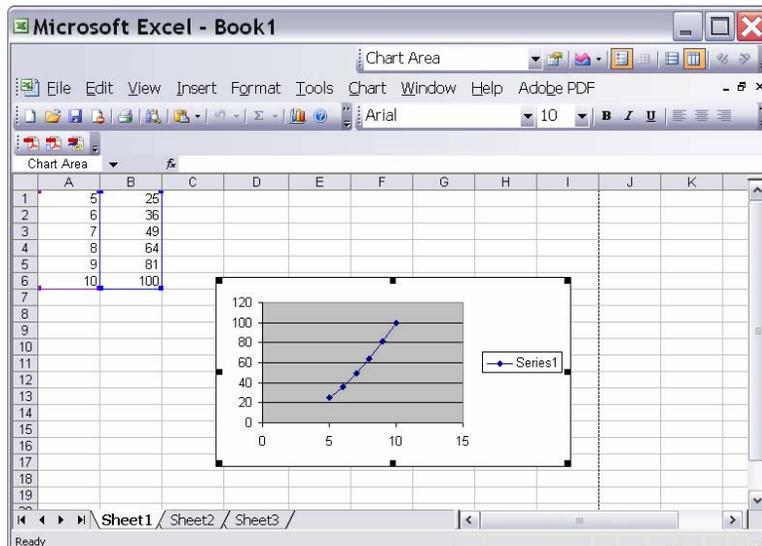
5. This will pop a window that look like this. Typically, you will want to choose **XY(Scatter)** [and not **Line**, even though it looks similar – this is the most common error people make]



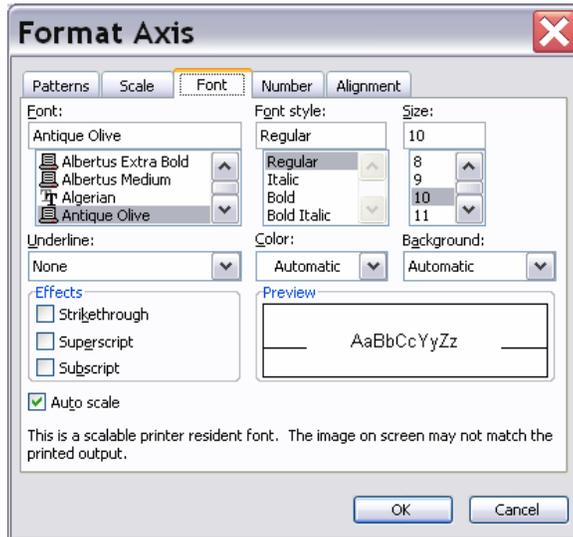
5. Now your Chart Wizard looks like the one below. Choose the version you want, most like the one shown here, which shows points and connects them by smoothed lines.



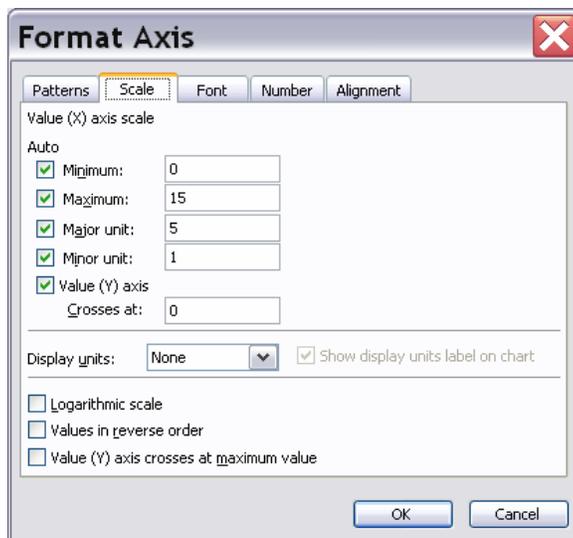
6. This will convert your highlighted data into a graph, like the one below. Note that it automatically chooses the axes, the tick marks, and the proportions.



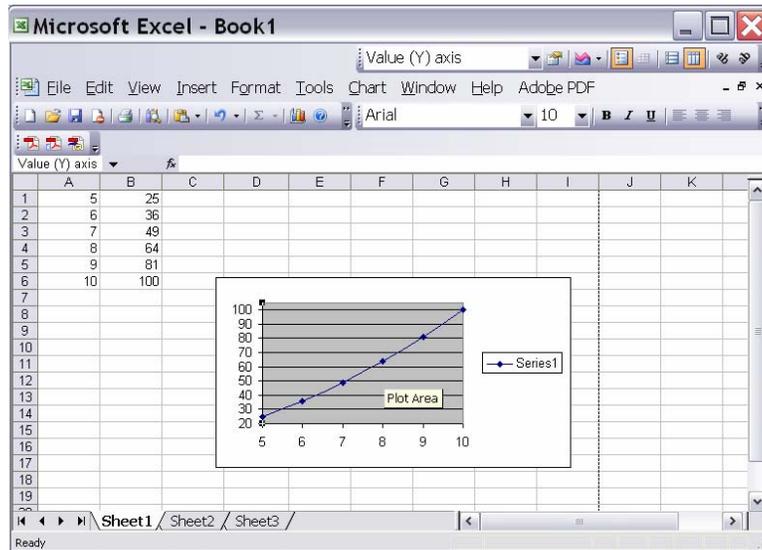
- To change the range and format of the x-axis, double-click on any number along the axis. It pops up a menu with various tabs. The one here allows you to change the font format.



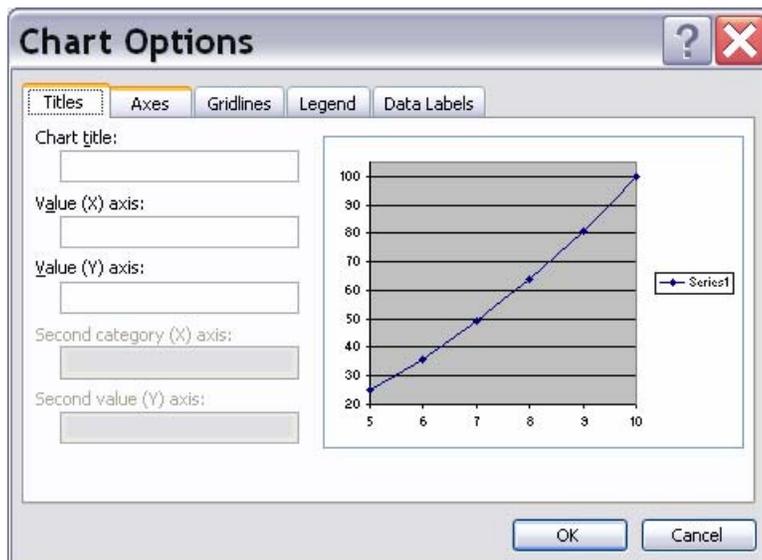
The most important one is called **Scale**. This allows you to choose the range of the x-axis (minimum and maximum values) and the steps between major and minor tick marks. Choose the range to lie between 5 and 10. Then click ok. After you complete this for the x-axis, repeat for the y-axis (click on any number on the y-axis) and choose a narrow range.



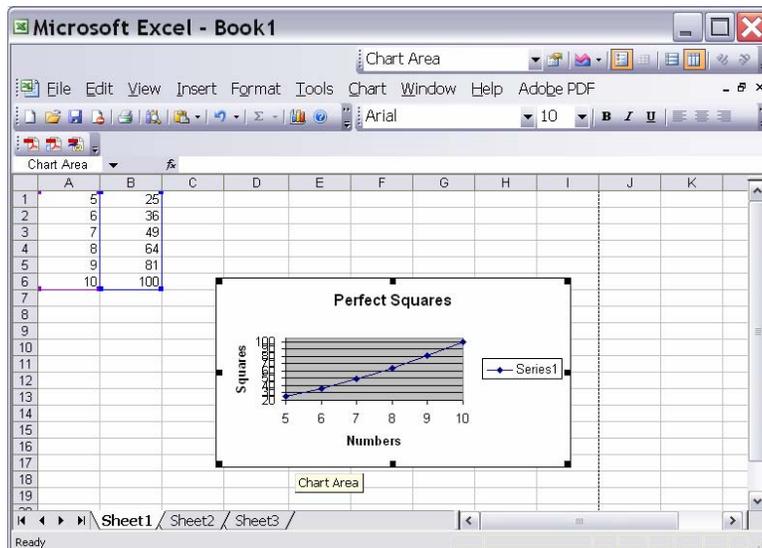
8. After you click OK again, you have an Excel Chart that looks like this:



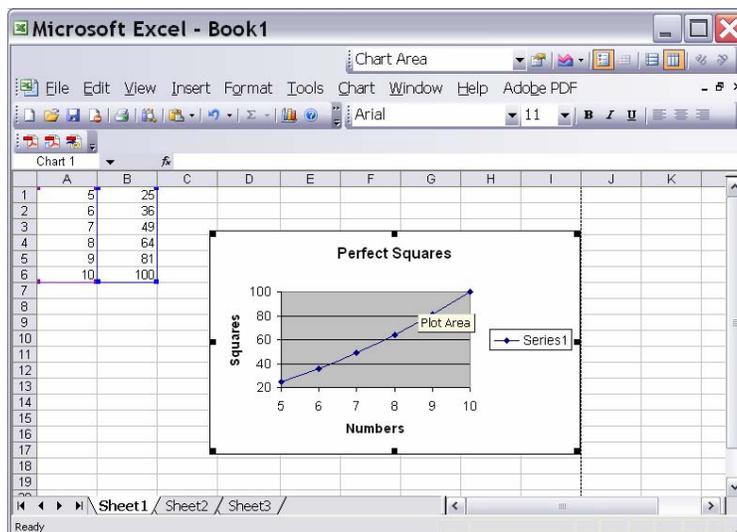
8. To put the finish touches on the plot (the graph and axes label), click on the chart (the graph itself) and a menu item called **Chart** should appear. Drag it down and choose **Chart Options**. It is self-explanatory.



9. Unfortunately, Excel is not too smart. After you have finished making all your choices, you might find that you get an cramped or ugly plot like this:



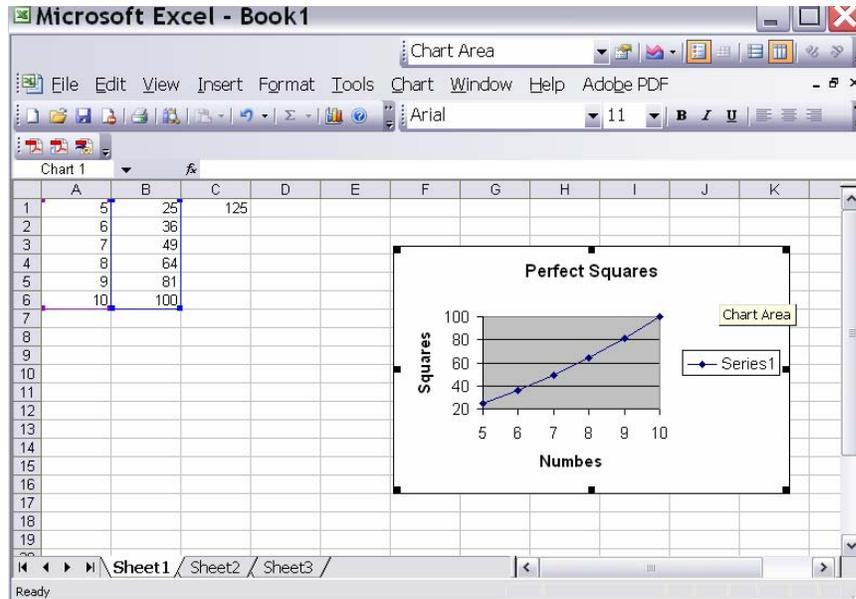
Then you have fiddle with resizing the window, re-choosing the axes, etc. until you get something you like.



There are other controls to play with -- for example, you might see if you can figure out how to change the legend -- but this is enough to get make charts for this course.

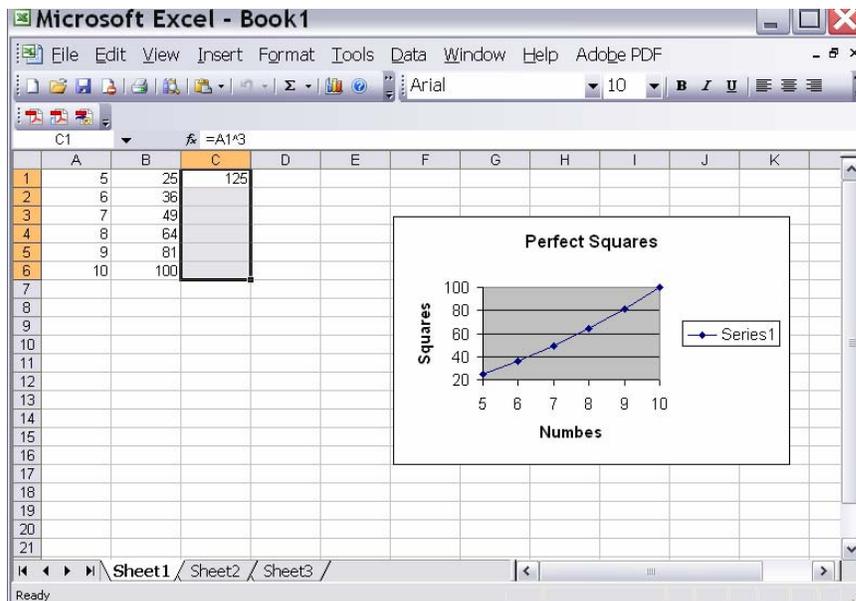
10. (Slight more advanced – Using Excel to do calculations and graph the results.) We will now make a graph of Perfect Cubes. For this purpose, we will use Excel to compute the cubes of the numbers in Column A and put them in Column C.

- a. Click on Box C1
- b. Type: $=A1^3$
This tells Excel to take the number in box A1 and cube it. Hit Enter and see the result

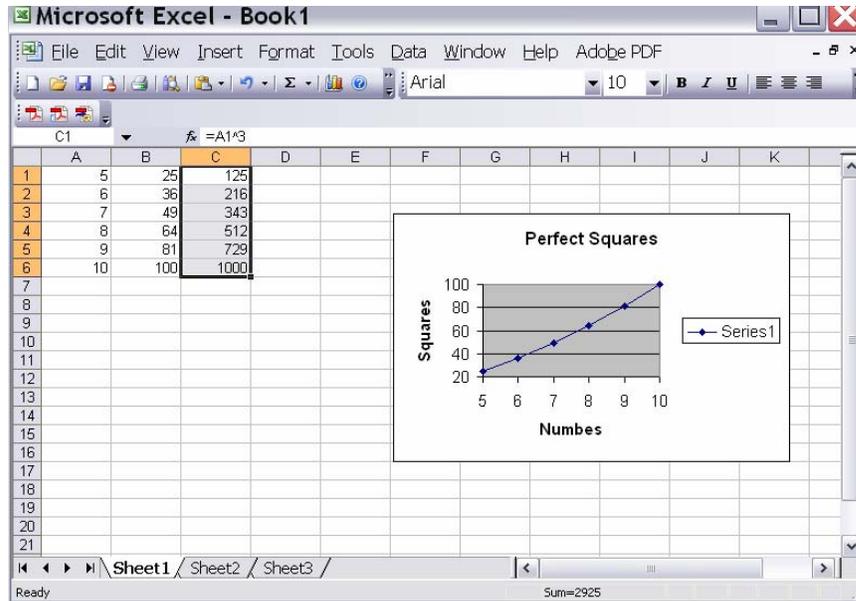


We could repeat this C2, C3, etc., but we would be repeating the same operation over and over. Imagine if there were 1000 numbers in Column A1 !?

- c. Instead, use your cursor to highlight C1 thru C6 (where you want the cubes to be placed).

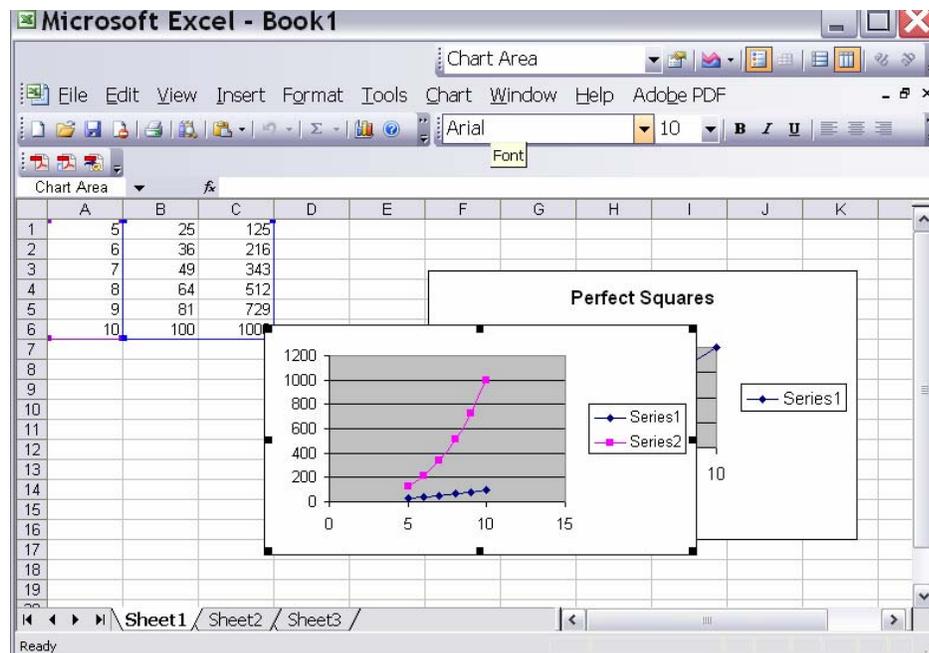


d. Drag down the **Edit** menu to **Fill**, then to **Down** on the submenu (and then release). This instructs Excel to take the same rule you applied to A1 and C1 and apply it successively to (A2, C2), then (A3,C3), etc., as far as you highlighted:

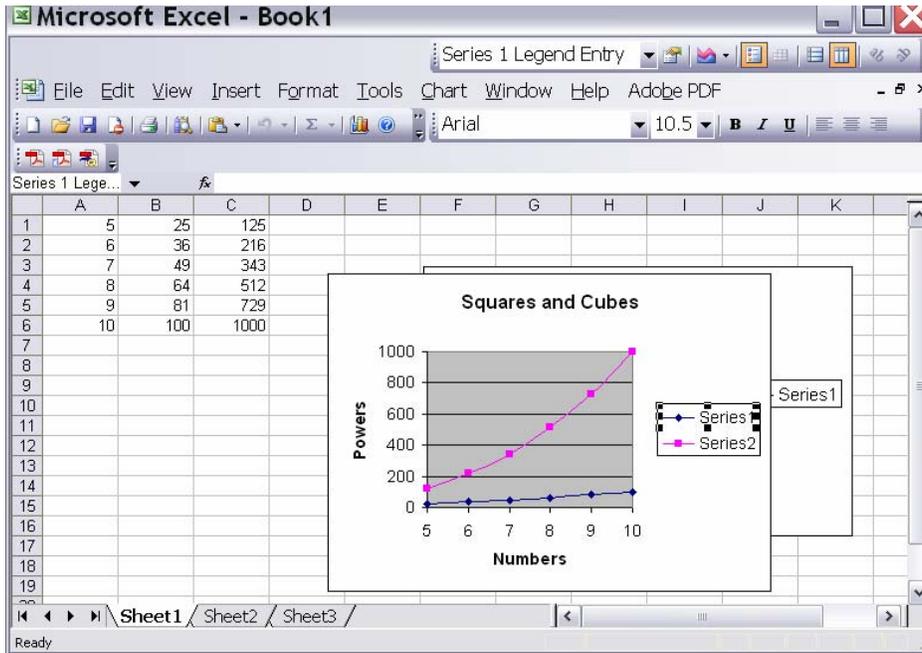


11. Now we want to graph Column A vs. Column C.

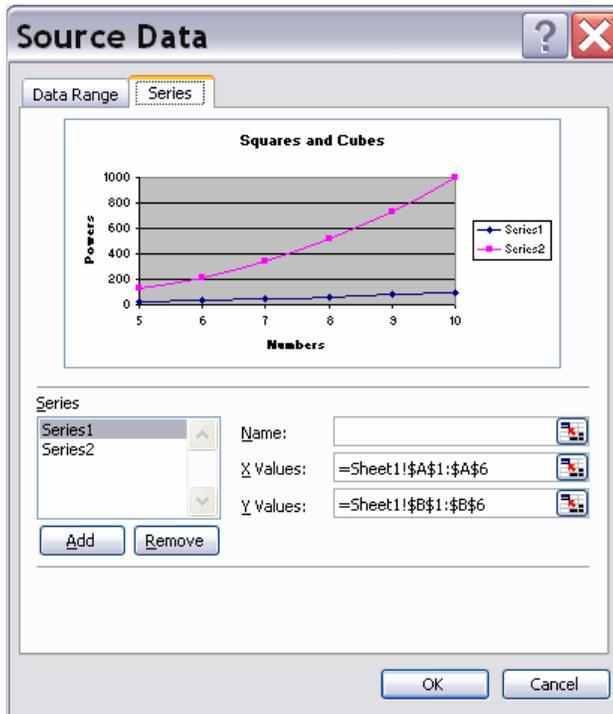
- Highlight all THREE columns
- Choose the Chart wizard as in Step 4. Just hit **Next** until it finishes and places the plot on the Sheet. Notice that it plots both the squares and the cubes



Label axes as before.

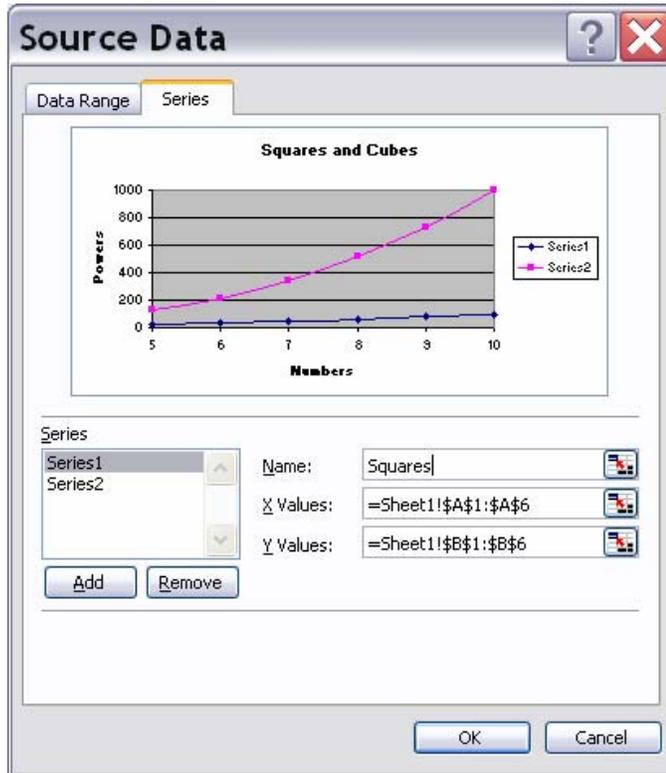


If you want to change the Legend (so you can mark which curve is the squares and which is the cube), hit anyplace in the chart. Under the **Chart** menu, choose **Source Data**. A new window pops up:



Hit the Tab that reads “Series.” Hit Series1 in the window on lower left.

Under Name, but the Name you want to call the first curve (Squares).



Click Ok. The window disappears and now the first curve in the legend has the label you chose. Now repeat the process choosing Series2 and giving it the name you want (Cubes). The result is:

