Math 432 – What Makes a Good Graph?

1. The axes should be perpendicular to each other. They also should cross at the origin, unless something in the context of the problem makes a different point of intersection a better choice. If they do not cross at the origin, the point of intersection must be clearly labeled.

2. Both axes should be clearly and fully labeled. In other words, the reader should be able to make out what it says, and all the pertinent information should be there. Pertinent information includes:
   a. The description and units for each axis [such as "cost (in thousands of $)", "time (in years since 1980)", "distance (in miles from Frederick, MD)", etc.], and
   b. A detailed scale on each axis (enough hash marks and values, for example, so that the reader could estimate the coordinates of any point on the graph).

3. The graphs should show all the important features. These usually include important points and correct shape.
   a. Important points should be correctly positioned, and they should be labeled (with their coördinates) unless the labels are "obvious" or would interfere with more important features of the graph. Important points include:
      1. The x-intercept(s) and y-intercept(s).
      2. Points corresponding to information given in the problem.
      3. The vertex of a parabola.
      4. Other – local minima and maxima, points of inflection, etc.
   b. Correct shape includes the following.
      1. Lines should be straight. (Use a ruler, a credit card, or something else.)
      2. Parabolas should look like curved Vs, not like Us.
      3. Graphs should be increasing and decreasing in the right places.
      4. Graphs should show concavity correctly and in the right places.

4. Further requirements for graphs on homework sets.
   a. If you produce your graph by hand, you must use graph paper.
   b. If you use some computer software to produce your graph, you do not need to use graph paper.
   c. In any case, your graph must be correctly located within the homework assignment.