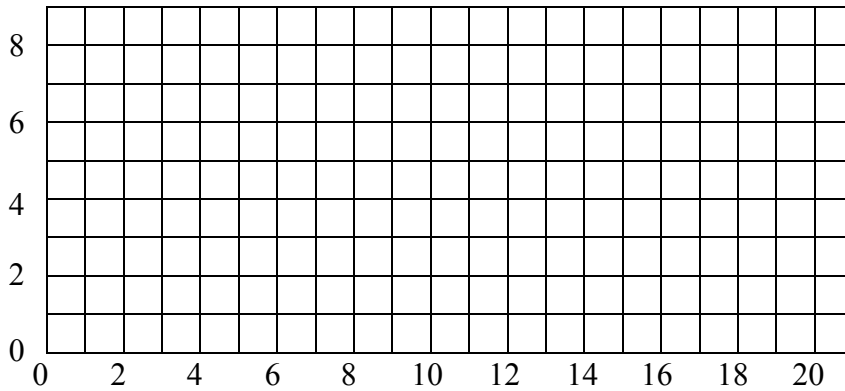
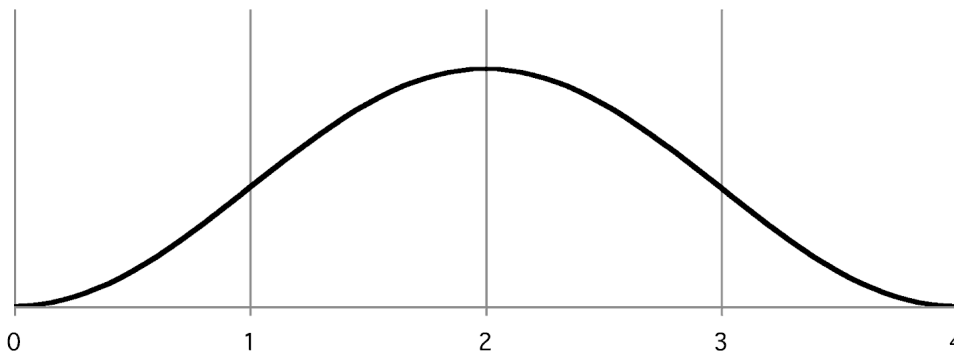

SCI 340 Worksheet #1
Unit Conversion and Graphs

1. The speed of sound in air is typically around 340 m/s. What is this speed in mi/h? Show your work.

2. a. In the grid below, draw the line with a slope of $1/3$ that passes through the point (3, 3).
b. In the same grid, draw the line with a slope of -3 that passes through the point (8, 2).
Make it clear on your graph which line is which.



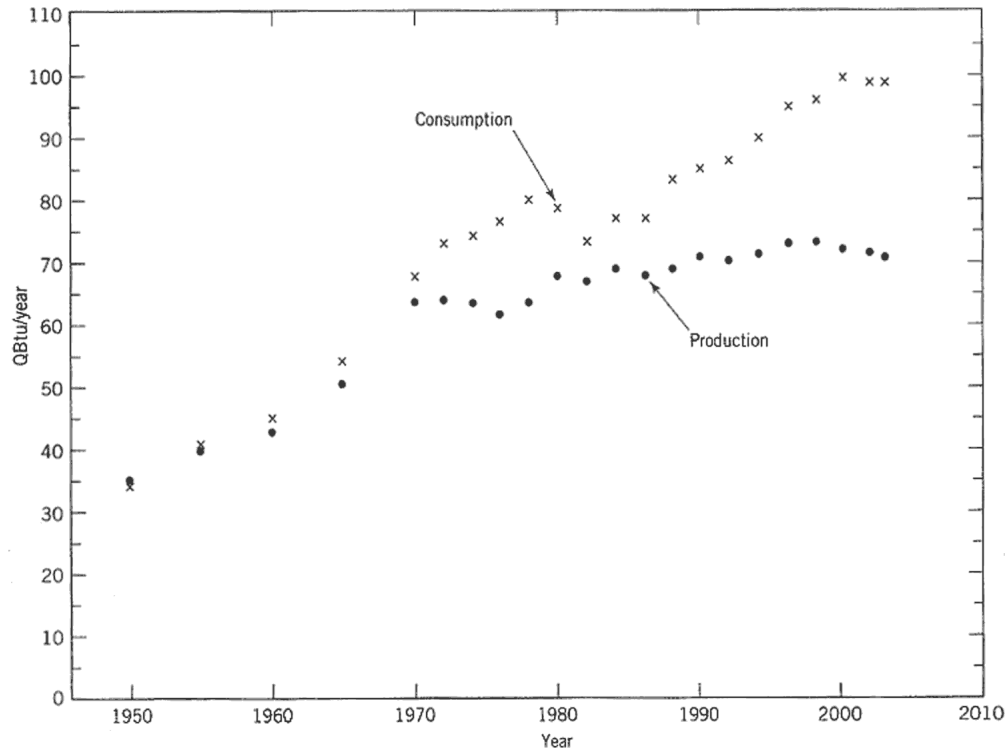
3. In the plot shown below, in what regions is the slope of the curve:



positive? _____ negative? _____ zero? _____

increasing? _____ decreasing? _____

4. This graph shows energy production and consumption in the United States from 1850 to 2002. A “QBtu” is 10^{15} British thermal units.
- a. Use a straightedge to draw a single straight line on the graph to *approximate* the data for energy consumption.



Source: U.S. Department of Energy, Energy Information Administration, *Annual Energy Review 2003*.

- b. Between 1950 and 2002, what is the area under the line you drew?
- c. What are the units of the area?
- d. What is the physical meaning of the area and of its units?
- e. What is the slope of the line you drew?
- f. What are the units of the slope?
- g. What is the physical meaning of the slope and of its units?