Name _____

Homework 8
Sections 2.1 & 2.2

1. (3) The chirp rate of the snowy tree cricket is dependent on the ambient temperature and can be modeled surprisingly well by a linear function. Suppose that a snowy tree cricket chirps 40 times per minute when the temperature is 50°F and 180 times per minute when the temperature is 85°F. Determine the linear function which models the chirp rate, C (in chirps per minute), as a function of the temperature, T (in $^\circ F$).

2. (3) The water pressure (in pounds per square inch) on an underwater diver is a linear function of the diver's depth (in feet). During a particular dive, the following data are collected:

Depth, d	20	30	45
Pressure, P	23.4	27.7	34.15

Determine the function $P = f(d)$ which gives pressure in terms of depth.

3. (4) Amanda leaves on a trip and travels at a constant 60 miles per hour. Two hours later, Vanessa leaves from the same point in the same direction and travels at a constant 80 miles per hour. How long after Vanessa leaves will she catch Amanda?

4. (4) A chemist needs 40 ounces of an 18% chlorine solution for a certain experiment. She currently has only a $9\frac{1}{2}\%$ chlorine solution and a 22% chlorine solution. How much of each must she mix in order to create her needed solution?

5. (3) Determine the vertex and intercepts of the graph of $y = 3(x + 4)^2 - 12$.

6. (4) Determine the equation, in standard form, for the graph shown below.