1. A person joins a weight loss program that guarantees losing at least 1.5 lbs per week. If the person weighs 182 at the beginning of the program, find the maximum number of weeks to reach the goal weight of 140 lbs.

(a). Clearly define the variable x: Let x be _____ the number of weeks to reach goal _____ .

(b). Write an expression for the weight at x weeks.

(c). Write an inequality for the problem and solve it.

2. Nifty rents a car for \$46 per day and Mavis rents the same car for \$32 per day plus an initial fee of \$50. For how many days is it cheaper to rent from Nifty?

3. Find the domain of the expression $\sqrt[4]{6 + x - x^2}$

4. The height of a projectile with initial velocity v_0 and initial position s_0 is given by $s = -16^2 + v_0 t + s_0$, where s is in feet and t is in seconds. An object is dropped from a height of 48 ft.

(a). When with the object hit the ground?

(b). When will the height be less than 12 ft?

5. The revenue and cost (in dollars) to produce and sell x units of a product are given by

$$R = x(100 - 0.0005x) \qquad\qquad C = 40x + 200000$$

(a). Note that revenue is the number of units times the price per unit. What is the price per unit?

(b). How many units must be sold to get a profit of at least $800,000?

(c). For the number of units determined in part (b), what would be the range of prices per unit?

Complete the following homework problems.

Section 1.7, #97: You are considering 2 job offers. The first job pays $13.50 per hour. The second job pays $9.00 per hour plus $0.75 per unit produced per hour. How many units must you produce per hour for the second job to pay more per hour than the first job?

Section 1.8, #73: A projectile is fired straight upward from ground level ($s_0 = 0$) with an initial velocity of 160 feet per second.

(a). At what instant will it be back at ground level?

(b). When will the height exceed 384 feet?

Section 1.7, p. 137: #91, 95, (97 done above), 101, 107   and   Section 1.8, p. 147: #53-81(every other odd) [Note #73 done above.]