

Name \_\_\_\_\_

Homework 7.25 Linear Applications

1-6 The following problems can be modeled by linear functions. Find the following:

- a) What is the independent variable and the dependent variable?
- b) What is the rate of change?
- c) Write an equation for the linear function.
- d) Answer the question using the equation you wrote in part c.

1) The price of a particular model of car is \$15,000 today and rises with time at a constant rate of \$800 per year. How much will a new car of this model cost in 3.5 years?

- a) \_\_\_\_\_
- b) \_\_\_\_\_
- c) \_\_\_\_\_
- d) \_\_\_\_\_

2) The world record time in the 100-meter butterfly (swimming) was 50.40 seconds in 2006. Assume that the record falls at a constant rate of .05 second per year. Use your equation to predict the record for 2015.

- a) \_\_\_\_\_
- b) \_\_\_\_\_
- c) \_\_\_\_\_
- d) \_\_\_\_\_

3) A snowplow has a maximum speed of 40 miles per hour on a dry highway. Its maximum speed decreases by 1.1 miles per hour for every inch of snow on the highway. According to this model, at what snow depth will the plow be unable to move?

- a) \_\_\_\_\_
- b) \_\_\_\_\_
- c) \_\_\_\_\_
- d) \_\_\_\_\_

4) The cost of leasing a car is \$800 for a down payment and processing fee plus \$240 per month. For how many months can you lease a car with \$3680?

a) \_\_\_\_\_

b) \_\_\_\_\_

c) \_\_\_\_\_

d) \_\_\_\_\_

5) You can rent time on computers at the local copy center for an \$8 setup charge and an additional \$1.50 for every 5 minutes. How much time can you rent for \$25?

a) \_\_\_\_\_

b) \_\_\_\_\_

c) \_\_\_\_\_

d) \_\_\_\_\_

6) In 1980, the population of Boom Town began increasing at a rate of 200 people per year. The 1980 population was 2000 people. What is your projection for the population in the year 2010?

a) \_\_\_\_\_

b) \_\_\_\_\_

c) \_\_\_\_\_

d) \_\_\_\_\_