NAME _____ DATE _____

Practice 7

FOR USE WITH SECTION 2.1

For each table, tell whether there is a common ratio. If there is, write an equation relating the two variables *x* and *y*, where *x* is the quantity in the left-hand column of the table and *y* is the quantity in the right-hand column.

1.

Diameter of a tree trunk at various stages of growth	
Age of tree (yr)	**Trunk diam. (in.)**
2	1.3
4	2.6
5	3.25
7	4.55
10	6.5

2.

Wind resistance encountered by a bicyclist	
Speed (mi/h)	**Wind Resist. (lb)**
12	0.41
16	0.72
18	0.91
20	1.12
22	1.36

3.

Sales of a clothing company based on advertising	
Ad Budget (thous. of $)	**Sales (mil. of $)**
140	2.1
128	1.9
120	1.8
88	1.3
72	1.1

For each equation, tell whether *y* varies directly with *x*. If so, graph the equation.

4. $y = \frac{3}{5}x$ **5.** $y = \frac{2}{3x}$ **6.** $y = 2x + 3$ **7.** $y = -\frac{5x}{3}$

8. a. When she filled the gas tank, Wenona noticed that the gas guage indicated that she had used $\frac{5}{8}$ of the tank. Let x = the total capacity of the tank. Let y = the amount of gas used. Write an equation relating x and y at the time she filled the tank.

b. Wenona's gas tank took 7.5 gal to fill. What is the total capacity of her gas tank?

9. a. It took Wenona 1.2 h to drive the first 45 mi of her trip. Let y = the distance she covered in time x. Write an equation relating y and x based on Wenona's first 45 mi. (Assume that she drove at a more or less steady speed.)

b. Suppose the equation you wrote for part (a) remains true during the remaining 68 mi of her trip. How much longer will she be driving?

10. The graph at the right shows the results of fuel efficiency tests on three different cars. For each car, write a direct variation equation that relates distance traveled to gallons of fuel used. What does the constant of variation represent in all three cases?