LESSON 4.5

NAME _____ DATE _____

Challenge: Skills and Applications

For use with pages 234–239

In Exercises 1–3, state whether the two quantities have direct variation. If they do, find the constant of variation and write an equation that relates the variable quantities.

1. Marisa Margolez fenced a portion of a field. The fenced portion had an area of 88 square yards and a length of 11 yards. Later Marisa decided to keep the width of the fenced portion of the field the same and change the length of the fenced portion to 15 yards. Under these circumstances, do the area (A) and the length (L) have direct variation?

2. Start with the original dimensions for the fenced portion of the field in Exercise 1. Suppose Marisa Margolez decided to keep the area of the fenced portion the same as the original area but change the width of the fenced portion to 4 yards. Under these circumstances, do the length (L) and the width (W) have direct variation?

3. Karl Ivanovic designed a square-bottomed pan with a volume of 2400 cubic centimeters and a depth of 6 centimeters. He decided to keep the dimensions of the bottom of the pan the same and change the depth. Under these circumstances, do the volume of the pan (V) and the depth (d) have direct variation?

4. Suppose Karl Ivanovic from Exercise 3 kept the 6-centimeter depth the same in his pan with a volume of 2400 cubic centimeters and changed the length of the sides of the square bottom. Under these circumstances, is there a relationship between the volume of the pan (V) and the length of a side of the square bottom (s)?

5. Calories burned varies directly with time spent walking. David Wong burned 150 calories walking for 35 minutes. How many calories does he burn when he walks 2 hours in a week?

6. The cost of a piece of lace trim varies directly with the length of the piece. Find the cost of 8 yards of trim if 2 feet cost \$2.50.

7. Two points of a function have coordinates $(p, 10p)$ and $(q + 1, 10q + 10)$. Do these points belong to a direct variation model? If so, what is the constant of variation?