

Get Ready!

Lesson 2-2

Using Direct Variation

For each direct variation, find the constant of variation. Then find the value of y when $x = -3$.

1. $y = 4$ when $x = 3$

2. $y = 1$ when $x = -1.5$

3. $y = -5$ when $x = \frac{3}{2}$

4. $y = -16$ when $x = 7$

Lesson 4-4

Factoring Quadratic Expressions

Factor each expression.

5. $x^2 + x - 6$

6. $4x^2 + 17x + 15$

7. $9x^2 - 25$

8. $x^2 - 12x + 36$

9. $3x^2 + 10x + 8$

10. $x^2 - 5x + 6$

Lesson 4-5

Solving Quadratic Equations

Solve each equation.

11. $x^2 + 7x - 8 = 0$

12. $\frac{1}{4}x^2 + \frac{7}{2}x = -12$

13. $3x^2 = 18x - 24$

14. $9x^2 + 6x = 0$

15. $4x^2 + 16 = 34x$

16. $x^2 - 13x - 30 = 0$



Looking Ahead Vocabulary

17. If you need to drive 30 miles, you have many options. For instance, you can drive 15 miles per hour for 2 hours, 30 miles per hour for 1 hour, or 60 miles per hour for half an hour. Notice that when you double your speed, it takes half as much time to get to your destination. Mathematicians describe this kind of relationship as an *inverse variation*. Why do you suppose they use the word *inverse* to describe it?
18. Suppose you are hiking on a trail and find that the bridge over the river has been washed out, making a gap or *discontinuity* in the trail. Graphs can have gaps too. Sketch what you think a graph with a discontinuity might look like.