12.1 EXERCISES

SKILL PRACTICE

1. **VOCABULARY** Identify the constant of variation in the equation $y = \frac{-3}{x}$.

2. **WRITING** *Describe* the difference between a direct variation equation and an inverse variation equation.

EXAMPLE 1
on p. 765
for Exs. 3–14, 43

DESCRIBING EQUATIONS Tell whether the equation represents *direct variation*, *inverse variation*, or *neither*.

3. $y = -2x$

4. $xy = 1$

5. $y = x + 5$

6. $x = \frac{-1}{y}$

7. $xy = 5$

8. $\frac{y}{x} = 4$

9. $x = 7y$

10. $2x + y = 6$

11. $2x = \frac{8}{y}$

12. $x = -7$

13. $3x - 3y = 0$

14. $3xy = 20$

EXAMPLES 2 and 3
on p. 766
for Exs. 15–26

GRAPHING EQUATIONS Graph the inverse variation equation.

15. $y = \frac{2}{x}$

16. $y = \frac{-1}{x}$

⑰ $y = \frac{-7}{x}$

18. $y = \frac{10}{x}$

19. $y = \frac{-5}{x}$

20. $y = \frac{18}{x}$

21. $y = \frac{9}{x}$

22. $y = \frac{-2}{x}$

23. $y = \frac{15}{x}$

24. $y = \frac{6}{x}$

25. $y = \frac{-12}{x}$

26. $y = \frac{-8}{x}$

EXAMPLE 4
on p. 767
for Exs. 27–42

27. **ERROR ANALYSIS** The variables x and y vary inversely, and $y = 8$ when $x = 2$. *Describe* and correct the error in writing an inverse variation equation that relates x and y.

$y = ax$
$8 = a(2)$
$4 = a$
So, $y = 4x$. ✗

USE INVERSE VARIATION Given that y varies inversely with x, use the specified values to write an inverse variation equation that relates x and y. Then find the value of y when $x = 2$.

28. $x = 5, y = 2$

29. $x = 3, y = 7$

30. $x = -5, y = 4$

31. $x = 13, y = -1$

32. $x = -15, y = -15$

㉝ $x = -22, y = -6$

34. $x = 8, y = 3$

35. $x = 9, y = -2$

36. $x = 3, y = 3$

37. $x = -2, y = -10$

38. $x = -3, y = 40$

39. $x = -7, y = -10$

40. $x = -17, y = 8$

41. $x = 6, y = 11$

42. $x = -12, y = -13$

43. 🔻 **TAKS REASONING** The variables x and y vary inversely, and $y = 6$ when $x = 4$. What is the constant of variation?

Ⓐ 1.5 　　　Ⓑ 4 　　　Ⓒ 6 　　　Ⓓ 24