pg. 74 # 4-28 x 4
pg. 481 # 1-15, 37, 38, 43, 44

4.

x	y	$y/x = k$
27	9	$\frac{9}{27} = \frac{1}{3}$
30	10	$\frac{10}{30} = \frac{1}{3}$
60	20	$\frac{20}{60} = \frac{1}{3}$

$k = \frac{1}{3}$

$y = \frac{1}{3}x$ or $y = \frac{x}{3}$

12. $y = 4x + 1$ no. the y-intercept is (0,1) not (0,0)

20. $k = \frac{y}{x} = \frac{\frac{-2}{3}}{\frac{-1}{3}} = -\frac{2}{3} \cdot \frac{-3}{1} = -2$

$\frac{-2}{1} = \frac{y}{-5}$ $y = 10$

24! $\frac{y_1}{x_1} = \frac{y_2}{x_2}$ $\frac{4}{-2} = \frac{6}{x}$ $4x = -12$ $x = -3$ $\left(\frac{4}{-2} = \frac{6}{-3} = -2\right)$

1. $xy = k$
$1 \cdot 11 = 11 = k$
$y = \frac{11}{x}$

7.

x	y	$k = \frac{y}{x}$
3	15	$\frac{15}{3} = 5$
8	40	$\frac{40}{8} = 5$
10	50	$\frac{50}{10} = 5$
22	110	$\frac{110}{22} = 5$

as $x \uparrow$, $y \uparrow$ try direct variation

$k = 5$ $y = 5x$

13. $xy = k$
$20(5) = 100 = k$
$y = \frac{100}{x}$

37. $k = \frac{y}{x}$ $(3,7)$ $(8,y)$

$\frac{7}{3} = \frac{y}{8}$ $\frac{56}{3} = \frac{3}{3}y$

$\frac{56}{3} = 18\frac{2}{3} = y$

43. $k = xy$ $(3,7)$ $(8,y)$

$3 \cdot 7 = 8y$

$\frac{21}{8} = \frac{8}{8}y$

$\frac{21}{8} = 2\frac{5}{8} = y$

1. yes; $k = 2, y = 2x$
2. yes; $k = -3, y = -3x$
3. no
4. yes; $k = \frac{1}{3}, y = \frac{1}{3}x$
5. yes; $k = 7, y = 7x$
6. no
7. yes; $k = -2, y = -2x$
8. no
9. yes; $k = 12$
10. yes; $k = 6$
11. yes; $k = -2$
12. no
13. no
14. yes; $k = -5$
15. yes; $k = 6$
16. no
17. $k = \frac{2}{7}; -\frac{10}{7}$
18. $k = -\frac{5}{3}; \frac{25}{3}$
19. $k = -1; 5$
20. $k = 2; -10$
21. $k = -\frac{17}{4}; 21\frac{1}{4}$
22. $k = -\frac{1}{4}; 1\frac{1}{4}$
23. a. $k = \frac{13}{36}$
    b. $s = \frac{13}{36}h$
    c. ≈23 ft 1 in.
24. −3
25. 4
26. 10.5
27. $\frac{5}{3}$
28. ≈681.8 mi/h
29. yes; $k = \frac{2}{3}, y = \frac{2}{3}x$
30. no
31. no
32. yes; $k = 1.3, y = 1.3x$
33. $y = 2x$
34. $y = \frac{7}{3}x$
35. $y = -\frac{9}{2}x$
36. $y = -500x$
37. $y = \frac{3}{5}x$
38. $y = -\frac{1}{9}x$
39. $y = \frac{2}{7}x$
40. $y = -\frac{14}{3}x$
41. 9
42. 6
43. 90
44. −140
45. 1.2
46. No; $y = 1.7x$ does not contain the point $(9, -9)$.

Answers for Lesson 9-1, pp. 481–483 Exercises

1. $y = \frac{11}{x}$
2. $y = -\frac{1300}{x}$
3. $y = \frac{1}{x}$
4. $y = -\frac{56}{x}$
5. $y = \frac{3.6}{x}$
6. $y = \frac{250}{x}$
7. direct; $y = 5x$
8. inverse; $y = \frac{42}{x}$
9. direct; $y = 2x$
10. inverse; $y = \frac{0.3}{x}$
11. inverse; $y = \frac{1}{x}$
12. neither
13. $y = \frac{100}{x}$; 10
14. $y = -\frac{80}{x}$; -8
15. $y = -\frac{5}{3x}$; $-\frac{1}{6}$
16. A varies directly with the square of r.
17. A varies jointly with b and h.
18. h varies directly with A and inversely with b.
19. V varies jointly with B and h.
20. V varies jointly with h and the square of r.
21. h varies directly with V and inversely with the square of r.
22. V varies jointly with ℓ, w, and h.
23. ℓ varies directly with V and inversely with the product of w and h.
24. $z = \frac{5x}{y}$; $\frac{20}{9}$
25. $z = 10xy$; 360
26. $z = \frac{3x^2}{y}$; $\frac{16}{3}$
27. $z = \frac{4}{xy}$; $\frac{1}{9}$
28. a. 14,000 b. 226
29. 18
30. 3.6
31. $\frac{1}{4}$
32. 6
33. 9
34. 16
35. 7200 rpm
36. $F = k\frac{m}{d^2}$
37. $18\frac{2}{3}$
38. 10
39. 2
40. 5.4
41. ≈ 4.277
42. 3.64
43. 2.625
44. 2.5
45. 8
46. 15
47. 11.786
48. ≈ 1.857
49. 32
50. $\frac{3}{16}$
51. $\frac{40}{3}$