Answers for Lesson 9-4 Exercises

1. $\frac{1}{2x - 1}$; $x \neq 0$ or $\frac{1}{2}$

2. $2c + 3$; $c \neq 0$

3. $b + 1$; $b \neq 1$

4. $z - 7$; $z \neq -7$

5. $\frac{2}{x + 5}$; $x \neq -5$

6. $\frac{x + 4}{x - 6}$; $x \neq 6$ or -4

7. $\frac{7}{15x^2}$; $x \neq 0$, $y \neq 0$

8. $\frac{xy}{4}$; $x \neq 0$, $y \neq 0$

9. $\frac{4}{3}$; $y \neq \frac{1}{2}$ or 3

10. $\frac{4(x + 6)}{3(3x + 8)}$; $x \neq 3$ or $-\frac{8}{3}$

11. $\frac{x - 2}{x(x - 1)}$; $x \neq 0, 1, -1$, or -2

12. 1; $x \neq -2, -1, 2$, or 3

13. $\frac{2}{3x^2y^2}$; $x \neq 0$, $y \neq 0$

14. $\frac{y}{2x^2}$; $x \neq 0$, $y \neq 0$

15. $\frac{5(x + y)}{3}$; $x \neq y$

16. 1; $y \neq -2$ or 4

17. $\frac{x(x - 1)}{3(x + 1)}$; $x \neq -1, 1$, or 0

18. $\frac{4(y - 3)}{y(y + 5)}$; $y \neq 2, -5$, or 0

19. $\frac{x - 8}{x - 10}$; $x \neq -3$ or 10

20. $\frac{y + 6}{y - 2}$; $y \neq 2$

21. $\frac{y(y + 3)}{12(y + 4)}$; $x \neq 0$, $y \neq -4$ or 3

22. $\frac{6(a + 1)}{a - 3}$

23. The student is not correct; $x = 2$ will make the denominator of $\frac{x}{x - 2}$ equal 0, so $x = 2$ is not a solution.

24. Check students' work.

25. The numerator and the denominator have no common factors; check students' work.

26. a. $\frac{\frac{2}{3}\pi r^3}{2\pi r^2 + \pi r^2} = \frac{2r}{9}$

b. $\frac{\pi r^2(r)}{2\pi r^2 + 2\pi r(r)} = \frac{r}{4}$

c. The ratio for the cylindrical tank is larger.

d. The cylindrical tank will have a larger volume.

27. $\frac{a + 3}{(a - 3)(a - 3)}$; $a \neq$ -4,-3, or 3

28. $\frac{2(b - 5)}{b + 5}$; $b \neq$ -5

29. $\frac{4}{x}$; $x \neq$ 0, -5,4, or 1

30. $\frac{18x}{(x + 9)(x + 3)}$; $x \neq$ -9,-3, or 3

31. $\frac{x + 1}{x - 4}$; $x \neq$ -3,$\frac{1}{2}$,2, or 4

32. $\frac{x + 1}{x - 1}$; $x \neq$ -$\frac{1}{2}$, $\frac{1}{2}$,1,or -2

33. $\frac{x(x - 1)^3}{(x + 4)}$; $x \neq$ -4,0,1

34. 2;$x \neq$ -3,1

35. $\frac{18x^5}{y^2}$; $y \neq$ 0

36. $\frac{2(a + 8)}{2a + 5}$

37. a. 1.2 m/s^2

b. $\approx$2.68 m/s^2

38. a. $2x^n + 1$

b. 2 is a factor of $2x^n$, so $2x^n$ is even, and $2x^n + 1$ is odd.

39. $\frac{4x}{3y}$; $x \neq$ 0 or -*1*,$y \neq$ 0

40. $-\frac{3a^2b^2}{4}$; $a \neq$ 0 or *b*, $b \neq$ 0

41. $\frac{15}{4n^2}$; $m \neq$ 0 or$-\frac{2}{3}n$,$n \neq$ 0