

Reviewing ALL the Skills

Evaluate each using the values given.

1) $xz - 3$; use $x = -3$, and $z = -6$

2) $\frac{x}{4z}$; use $x = \frac{9}{5}$, and $z = \frac{3}{4}$

Perform the indicated operation(s) and/or simplify.

3) $n - 4 + 8n - 8$

4) $3b - 6(6b - 7)$

5) $-7(9k + 5) - 5(k + 4)$

6) $-5(1 - k) - 10(5 - 3k)$

7) $(-5x + 5 + 2x^3) + (5x^3 - 2x^2 - 2x) - (6x^2 - 8x - 5x^3 + 6)$

8) $7p^2(7p^2 + 3p + 1)$

9) $(x - 4y)(4x + 3y)$

10) $(3x + 5)(6x^2 + 2x - 5)$

11) $(2a^3 + 4a^2 + 2a) \div 8a^2$

12) $(a^2 - 3a - 3) \div (a + 2)$

13) $(7v^3 - 12v^2 + 54v - 31) \div (7v - 5)$

14) $(7m - 7n)(7m + 7n)$

15) $(5y + 4x)^2$

16) $\frac{100n^2}{20n^3}$

17) $\frac{6 - n}{4n - 24}$

18) $\frac{27 - 3m}{m^2 - 11m + 18}$

19) $\frac{5r^2 - 25r - 30}{14r^3 - 68r^2 - 96r}$

20) $\frac{8v + 8}{24v - 40} \cdot \frac{21v^2 - 35v}{v + 1}$

21) $\frac{6p - 6}{7p} \div \frac{42p - 24}{49p - 28}$

22) $\frac{x - 2}{4x + 4} \div \frac{10x^2 + 30x}{4x^2 + 16x + 12}$

23) $\frac{30x - 50}{-3x^2 + 20x - 25} \div \frac{3x - 4}{3x^2 + 11x - 20}$

24) $\frac{\frac{2x - 4}{x + 2} - \frac{x + 2}{x}}{\frac{3x - 2}{x} - \frac{x + 3}{x + 2}}$

25) $\frac{5}{a - 4} - \frac{2}{a + 6}$

$$26) \frac{5}{4y^3} - \frac{3x}{4y}$$

$$27) \frac{3x-2}{3x^2+2x-8} + \frac{4x+3}{3x^2+5x-12}$$

$$28) \frac{3}{4} - \frac{x-2}{3x-3}$$

$$29) -7\sqrt{343mn^3p^3}$$

$$30) 2\sqrt{3} - 2\sqrt{45} - 2\sqrt{20} - 3\sqrt{45}$$

$$31) -3\sqrt{18} + 3\sqrt{8} + 3\sqrt{54}$$

$$32) \sqrt{6}(\sqrt{10} - 4\sqrt{2})$$

$$33) (5\sqrt{2} - 1)(-5\sqrt{2} - 5)$$

$$34) \frac{\sqrt{25}}{\sqrt{16}}$$

$$35) \frac{5}{3\sqrt{3} - \sqrt{2}}$$

$$36) \frac{4 + 3\sqrt{3}}{3 - 2\sqrt{5}}$$

$$37) 4y^{-2} \cdot 4x^3y^2z^0 \cdot x^4y^2z^3$$

$$38) (3a^0b^0c^2)^{-3}$$

$$39) \frac{4x}{yx^2z^3}$$

$$40) (2yx^4)^2 \cdot 2y^0$$

$$41) \frac{4x^4y^3}{3x^{-1}y^{-3} \cdot 4y^3}$$

$$42) \frac{2ba^{-2} \cdot b^3}{(2b^{-2})^2 \cdot a^3b^3}$$

Solve each equation.

$$43) n - 18 = -13$$

$$44) \frac{v}{7} = -17$$

$$45) 110 = 10n - 10$$

$$46) 12 = 8m - 4m$$

$$47) x + 7 + 7x - 16 = 2x + 1 + 8x$$

$$48) 24 + 7v = -7(6v + 4) + 3$$

$$49) x + 7 + 8x - 7 = 4(x + 5) + 5(x - 6)$$

$$50) \frac{1}{7}x - \frac{7}{3}x = -\frac{23}{21}$$

$$51) 0.4 = x - 1.5x$$

$$52) -2 = -n^2 - n$$

$$53) 14n^2 - 33n = 56$$

$$54) a^2 = 76 - 20a$$

$$55) 3x^2 - 5 = 103$$

$$56) 5n^3 = -10n^2 + 13n$$

$$57) \frac{1}{n^2} = \frac{5}{2n^2} + \frac{1}{n}$$

$$58) \frac{n-4}{n+5} = 6 + \frac{n-6}{n+5}$$

$$59) \frac{1}{3n-3} = \frac{n-6}{n} + \frac{1}{3n^2-3n}$$

$$60) \frac{x+6}{x^2+3x} = \frac{1}{x^3+6x^2+9x} + \frac{x^2+3x-18}{x^3+6x^2+9x}$$

$$61) \frac{3}{p+4} = \frac{2}{p+7}$$

$$62) \frac{n-4}{6} = \frac{n}{4}$$

$$63) 4 = -2 + \sqrt{2x}$$

$$64) \sqrt{x+6} = \sqrt{2-x}$$

$$65) \sqrt{-12+8m} = m$$

$$66) 1 + \sqrt{4x+8} = x$$

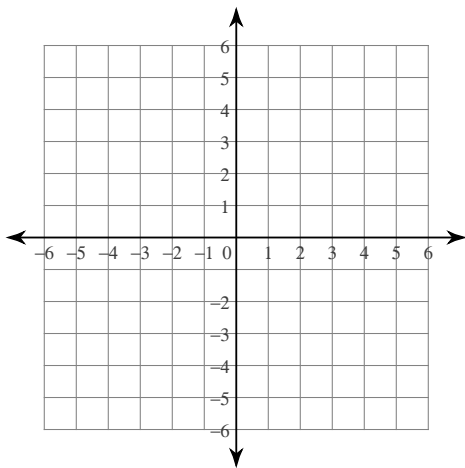
Solve each system.

$$67) \begin{aligned} 5x + 4y &= -3 \\ y &= 2x - 4 \end{aligned}$$

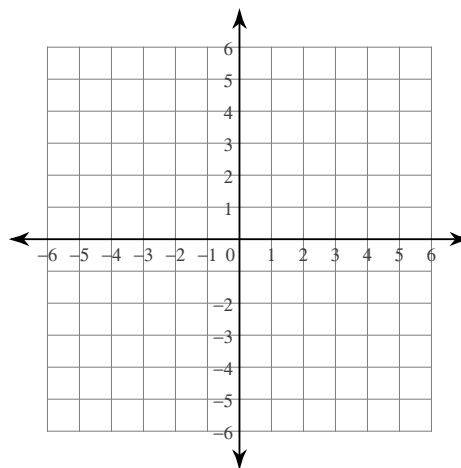
$$68) \begin{aligned} -9x + 2y &= -1 \\ -8x + 3y &= 4 \end{aligned}$$

Sketch the graph of each line.

$$69) 2x + y = 3$$

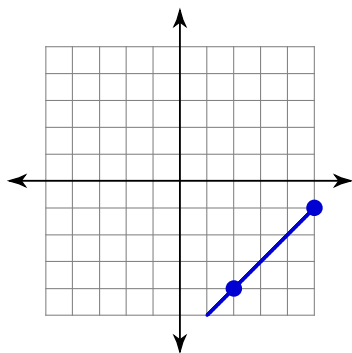


$$70) y = \frac{1}{4}x + 2$$



Find the slope of each line.

71)



72) through $(17, 11)$, $(-15, 20)$

73) $y = -\frac{1}{5}x + 4$

74) $3x - 5y = 0$

75) parallel to $8x + 3y = -9$

76) perpendicular to $5x - 3y = 0$

Write the standard form of the equation of each line.

77) Slope = $\frac{2}{5}$, y-intercept = -2

78) through: $(-2, -2)$, slope = 3

79) through: $(0, -3)$ and $(4, 0)$

80) through: $(-1, 2)$, parallel to $y = 2x - 5$

81) through: $(-2, 2)$, perp. to $y = x - 1$

Set up and solve. (R-E-S)

82) A container ship left Diego Garcia and traveled toward dry dock at an average speed of 30 km/h. A cruise ship left two hours later and traveled in the opposite direction with an average speed of 10 km/h. How long does the cruise ship need to travel before the vessels are 500 km apart?

83) Amy can pick forty bushels of apples in 10 hours. Matt can pick the same amount in 12 hours. If they worked together how long would it take them?

84) The school that Jasmine goes to is selling tickets to a play. On the first day of ticket sales the school sold 1 adult ticket and 14 child tickets for a total of \$77. The school took in \$100 on the second day by selling 10 adult tickets and 6 child tickets. Find the price of an adult ticket and the price of a child ticket.

85) The length of a rectangle is 7 inches more than three times its width. Its perimeter is 86 inches. Find its length.

86) The sum of two numbers is 17 and their difference is -1 . Find the numbers.

Answers to Reviewing ALL the Skills

1) 15

2) $\frac{3}{5}$

3) $9n - 12$

4) $-33b + 42$

5) $-68k - 55$

6) $-55 + 35k$

7) $12x^3 - 8x^2 + x - 1$

8) $49p^4 + 21p^3 + 7p^2$

9) $4x^2 - 13xy - 12y^2$

10) $18x^3 + 36x^2 - 5x - 25$

11) $\frac{a}{4} + \frac{1}{2} + \frac{1}{4a}$

12) $a - 5 + \frac{7}{a+2}$

13) $v^2 - v + 7 + \frac{4}{7v-5}$

14) $49m^2 - 49n^2$

15) $25y^2 + 40yx + 16x^2$

16) $\frac{5}{n}$

17) $-\frac{1}{4}$

18) $-\frac{3}{m-2}$

19) $\frac{5(r+1)}{2r(7r+8)}$

20) $7v$

21) $\frac{p-1}{p}$

22) $\frac{x-2}{10x}$

23) $-\frac{10(x+5)}{x-5}$

24) $\frac{x^2 - 8x - 4}{2x^2 + x - 4}$

25) $\frac{3a+38}{(a+6)(a-4)}$

26) $\frac{5-3xy^2}{4y^3}$

27) $\frac{7x^2 + 18x}{(3x-4)(x+2)(x+3)}$

28) $\frac{5x-1}{12(x-1)}$

29) $-49np\sqrt{7mnp}$

30) $2\sqrt{3} - 19\sqrt{5}$

31) $-3\sqrt{2} + 9\sqrt{6}$

32) $2\sqrt{15} - 8\sqrt{3}$

33) $-45 - 20\sqrt{2}$

34) $\frac{5}{4}$

35) $\frac{3\sqrt{3} + \sqrt{2}}{5}$

36) $\frac{-12 - 8\sqrt{5} - 9\sqrt{3} - 6\sqrt{15}}{11}$

37) $16x^7y^2z^3$

38) $\frac{1}{27c^6}$

39) $\frac{4}{yxz^3}$

40) $8y^2x^8$

41) $\frac{x^5y^3}{3}$

42) $\frac{b^5}{2a^5}$

43) $\{5\}$

44) $\{-119\}$

45) $\{12\}$

46) $\{3\}$

47) $\{-5\}$

48) $\{-1\}$

49) No solution.

50) $\left\{\frac{1}{2}\right\}$

51) $\{-0.8\}$

52) $\{-2, 1\}$

53) $\left\{\frac{7}{2}, -\frac{8}{7}\right\}$

54) $\{-10 + 4\sqrt{11}, -10 - 4\sqrt{11}\}$

55) $\{6, -6\}$

56) $\left\{0, \frac{-5 + 3\sqrt{10}}{5}, \frac{-5 - 3\sqrt{10}}{5}\right\}$

57) $\left\{-\frac{3}{2}\right\}$

58) $\left\{-\frac{14}{3}\right\}$

59) $\left\{\frac{19}{3}\right\}$

60) $\left\{-\frac{35}{6}\right\}$

61) $\{-13\}$

62) $\{-8\}$

63) $\{18\}$

64) $\{-2\}$

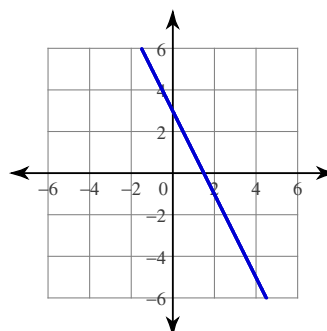
65) $\{2, 6\}$

66) $\{7\}$

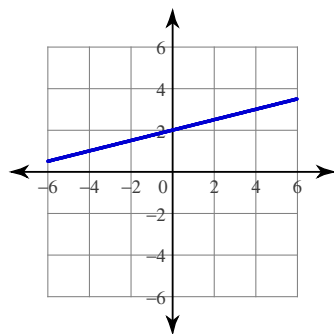
67) $(1, -2)$

68) $(1, 4)$

69)



70)



71) 1

72) $-\frac{9}{32}$

73) $-\frac{1}{5}$

74) $\frac{3}{5}$

75) $-\frac{8}{3}$

76) $-\frac{3}{5}$

77) $2x - 5y = 10$

78) $3x - y = -4$

79) $3x - 4y = 12$

80) $2x - y = -4$

81) $x + y = 0$

82) 11 hours

83) 5.45 hours

84) adult ticket: \$7, child ticket: \$5

85) 34 in

86) 8 and 9