Test Bank for Elementary Algebra 4th Sullivan

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MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Determine if the given value is a solution to the equation. Answer Yes or No.

1) $8x - 10 = 5;\ x = 2$

A) No B) Yes

Answer: A

2) $7m + 4 = 34;\ m = 4$

A) Yes B) No

Answer: B

3) $6k - 5 = 6;\ k = \frac{11}{6}$

A) Yes B) No

Answer: A

4) $4 - (x + 1) = 4(4x - 1);\ x = \frac{7}{17}$

A) Yes B) No

Answer: A

5) $6n + 5.1 = 7n + 7.1;\ n = -2$

A) No B) Yes

Answer: B

6) $4m - 2 = -3m - 37;\ m = -5$

A) Yes B) No

Answer: A

7) $3(x - 1) - x = 4x + 6;\ x = -4$

A) No B) Yes

Answer: A

Solve the equation using the Addition Property of Equality. Be sure to check your solution.

8) $-9 = b + 3$

A) {6} B) {12} C) {–6} D) {–12}

Answer: D

9) $3 = -15 + x$

A) {–18} B) {–45} C) {–12} D) {18}

Answer: D

10) $b + 2 = 4$

A) {6} B) {–6} C) {2 } D) {–2}

Answer: C

11) $t - 5 = 14$

A) {19} B) {9} C) {–9} D) {–19}

Answer: A

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12) $x - 11 = 10$

A) {–1} B) {1} C) {21} D) {–21}

Answer: C

13) $x + \frac{1}{11} = \frac{10}{11}$

A) $\left\{\frac{9}{11}\right\}$ B) $\left\{\frac{9}{10}\right\}$ C) $\{1\}$ D) $\left\{\frac{8}{11}\right\}$

Answer: A

14) $x - \frac{1}{6} = \frac{5}{6}$

A) $\left\{\frac{1}{2}\right\}$ B) $\left\{\frac{2}{3}\right\}$ C) $\left\{\frac{4}{5}\right\}$ D) $\{1\}$

Answer: D

15) $-\frac{1}{2} = x - \frac{7}{9}$

A) $\left\{-\frac{5}{18}\right\}$ B) $\left\{-\frac{23}{18}\right\}$ C) $\left\{\frac{23}{18}\right\}$ D) $\left\{\frac{5}{18}\right\}$

Answer: D

16) $-\frac{7}{19} = -\frac{15}{19} + x$

A) $\left\{\frac{8}{19}\right\}$ B) $\left\{-\frac{8}{19}\right\}$ C) $\left\{\frac{22}{19}\right\}$ D) $\left\{-\frac{22}{19}\right\}$

Answer: A

17) $x + \frac{1}{2} = -\frac{1}{4}$

A) $\left\{-\frac{1}{3}\right\}$ B) $\left\{-\frac{1}{2}\right\}$ C) $\left\{-\frac{7}{8}\right\}$ D) $\left\{-\frac{3}{4}\right\}$

Answer: D

18) $\frac{1}{5} + x = 7$

A) $\left\{\frac{34}{5}\right\}$ B) $\left\{\frac{36}{5}\right\}$ C) $\left\{\frac{6}{5}\right\}$ D) $\{34\}$

Answer: A

19) $x - 6.4 = 18.3$

A) {24.2} B) {11.9} C) {24.7} D) {11.4}

Answer: C

20) $y - 22.5 = -3.7$

A) {18.8} B) {18.3} C) {26.2} D) {25.7}

Answer: A

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21) $x - 1.5 = 16$

A) {17} B) {14.5} C) {17.5} D) {14}

Answer: C

Solve the problem.

22) Bob is saving to buy a car. The total amount that he needs is $9000. The amount that he has saved so far is $6000. Find the amount Bob needs by solving the equation $6000 + x = 9000$, where x represents the remaining amount he needs.

A) Bob needs $3000 more. B) Bob needs $3002 more.

C) Bob needs $9000 more. D) Bob needs $6000 more.

Answer: A

23) A weatherman reports that since 6:00 am this morning the temperature has dropped by 16° F to the current temperature of 32° F. Find the temperature, x, at 6:00 am by solving the equation $x - 16 = 32$.

A) The temperature at 6:00am was –16° F. B) The temperature at 6:00am was 48° F.

C) The temperature at 6:00am was –48° F. D) The temperature at 6:00am was 16° F.

Answer: B

Solve the equation using the Multiplication Property of Equality.

24) $9x = 8$

A) $\left\{-\frac{8}{9}\right\}$ B) $\left\{\frac{8}{9}\right\}$ C) $\left\{-\frac{9}{8}\right\}$ D) $\left\{\frac{9}{8}\right\}$

Answer: B

25) $-6a = 30$

A) {36} B) {–5} C) {–36} D) {1}

Answer: B

26) $-3x = -21$

A) {18} B) {2} C) {–18} D) {7}

Answer: D

27) $\frac{n}{5} = 9$

A) {45} B) {14} C) {13} D) {1}

Answer: A

28) $\frac{n}{5} = 12$

A) {16} B) {60} C) {2} D) {17}

Answer: B

29) $\frac{x}{-7} = 4$

A) {–28} B) {–4} C) {–3} D) {–1}

Answer: A

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30) $-\frac{1}{7}x = -1$

A) {–9} B) {7} C) {0} D) {–8}

Answer: B

31) $54 = -\frac{6}{7}x$

A) $\left\{-\frac{384}{7}\right\}$ B) {– 63} C) $\left\{-\frac{324}{7}\right\}$ D) $\left\{-\frac{372}{7}\right\}$

Answer: B

32) $-\frac{1}{14}a = 0$

A) {0} B) {14} C) {1} D) {–14}

Answer: A

33) $\frac{2}{7} = 2x$

A) $\left\{\frac{4}{7}\right\}$ B) $\left\{\frac{1}{7}\right\}$ C) {7} D) $\left\{-\frac{12}{7}\right\}$

Answer: B

34) $\frac{1}{4} = -\frac{x}{3}$

A) $\left\{-\frac{4}{3}\right\}$ B) $\left\{-\frac{3}{4}\right\}$ C) $\left\{\frac{4}{3}\right\}$ D) $\left\{\frac{3}{4}\right\}$

Answer: B

35) $-\frac{1}{3}y = \frac{1}{2}$

A) $\left\{-\frac{3}{2}\right\}$ B) $\left\{-\frac{2}{3}\right\}$ C) {3} D) $\left\{\frac{3}{2}\right\}$

Answer: A

36) $-3 = -\frac{3}{5}k$

A) {–2} B) {2} C) {5} D) {1}

Answer: C

37) –33.6 = –8.4c

A) {25.2} B) {–25.2} C) {2} D) {4}

Answer: D

Solve the problem.

38) The Smith family is planning a 480–mile trip. They plan to travel at an average speed of 40 miles per hour. To determine the number of hours the trip will take, solve the equation 480 = 40t.

A) 14 hr. B) 11 hr. C) 12 hr. D) 13 hr.

Answer: C

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39) Suppose you borrowed $3000 from a relative. Last month, your relative charged you $10 interest. The solution to the equation $10 = \frac{3000}{12} \cdot r$ represents the annual interest rate on the loan. Find the interest rate.

A) 40% B) 4% C) 0.4% D) 2500%

Answer: B

Solve the equation. Check your solution.

40) $3r + 8 = 20$

A) {9} B) {1} C) {13} D) {4}

Answer: D

41) $-7n + 1 = 17$

A) $\left\{-\frac{7}{16}\right\}$ B) $\left\{\frac{7}{16}\right\}$ C) $\left\{\frac{16}{7}\right\}$ D) $\left\{-\frac{16}{7}\right\}$

Answer: D

42) $9 - 2t = 20$

A) $\left\{\frac{2}{11}\right\}$ B) $\left\{\frac{11}{2}\right\}$ C) $\left\{-\frac{2}{11}\right\}$ D) $\left\{-\frac{11}{2}\right\}$

Answer: D

43) $-13 = 6x + 5$

A) {−20} B) {−24} C) {−3} D) {7}

Answer: C

44) $37 = 7n - 5$

A) {35} B) {39} C) {6} D) {10}

Answer: C

45) $10n - 5 = 25$

A) {7} B) {24} C) {3} D) {20}

Answer: C

46) $7 = -8x - 9$

A) {24} B) {28} C) {−2} D) {8}

Answer: C

47) $\frac{4}{7}x + 2 = 7$

A) $\left\{\frac{35}{4}\right\}$ B) $\left\{\frac{4}{35}\right\}$ C) $\left\{-\frac{35}{4}\right\}$ D) $\left\{-\frac{4}{35}\right\}$

Answer: A

48) $\frac{1}{5} = \frac{1}{10} - 4x$

A) $\left\{\frac{1}{40}\right\}$ B) $\{40\}$ C) $\{-40\}$ D) $\left\{-\frac{1}{40}\right\}$

Answer: D

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49) $\frac{1}{6}f - 3 = 1$

A) {24} B) {–24} C) {–12} D) {12}

Answer: A

50) $\frac{1}{3}a - \frac{1}{3} = -4$

A) {–11} B) {11} C) {13} D) {–13}

Answer: A

51) $9x - 8x + 3 = 3$

A) {3} B) {0} C) {6} D) {–3}

Answer: B

52) $-4x - 12 + 5x = -3$

A) {9} B) {15} C) {–15} D) {–9}

Answer: A

53) $-4x - 5 - 8x + 10 = 8$

A) $\left\{\frac{1}{4}\right\}$ B) $\left\{\frac{3}{4}\right\}$ C) $\left\{-\frac{1}{4}\right\}$ D) $\left\{\frac{7}{12}\right\}$

Answer: C

54) $9x - (8x - 1) = 2$

A) $\{1\}$ B) $\{-1\}$ C) $\left\{\frac{1}{17}\right\}$ D) $\left\{-\frac{1}{17}\right\}$

Answer: A

55) $5(3x - 1) = 20$

A) $\left\{\frac{5}{3}\right\}$ B) $\left\{\frac{19}{15}\right\}$ C) $\{1\}$ D) $\left\{\frac{7}{5}\right\}$

Answer: A

56) $\frac{2}{3}(5x - \frac{1}{6}) - \frac{3}{4} = \frac{1}{4}$

A) $\left\{\frac{1}{15}\right\}$ B) $\left\{\frac{7}{20}\right\}$ C) $\left\{\frac{9}{40}\right\}$ D) $\left\{\frac{1}{3}\right\}$

Answer: D

57) $-8(2 + x) = -24$

A) {–22} B) {1} C) {5} D) {–26}

Answer: B

58) $-3(3x - 1) = 2$

A) $\left\{-\frac{5}{9}\right\}$ B) $\left\{\frac{5}{9}\right\}$ C) $\left\{-\frac{1}{9}\right\}$ D) $\left\{\frac{1}{9}\right\}$

Answer: D

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59) $10y = 6y + 4 + 3y$

A) {4} B) {40} C) {–40} D) {–4}

Answer: A

60) $-9b + 8 + 7b = -3b + 13$

A) {–8} B) {5} C) {–13} D) {13}

Answer: B

61) $-2x - 7 = -1 + 3x$

A) $\left\{\frac{5}{6}\right\}$ B) $\left\{-\frac{5}{6}\right\}$ C) $\left\{-\frac{1}{8}\right\}$ D) $\left\{-\frac{6}{5}\right\}$

Answer: D

62) $6x - 9 = -4 - 9x$

A) $\{-3\}$ B) $\{3\}$ C) $\left\{\frac{3}{13}\right\}$ D) $\left\{\frac{1}{3}\right\}$

Answer: D

63) $9x = 5(9x + 5)$

A) $\left\{\frac{25}{9}\right\}$ B) $\left\{\frac{25}{36}\right\}$ C) $\left\{-\frac{25}{36}\right\}$ D) $\left\{\frac{36}{25}\right\}$

Answer: C

64) $2(y - 9) = 3y - 18$

A) {–36} B) {0} C) {18} D) {–18}

Answer: B

65) $3(3x - 4) = 6x - 9$

A) $\left\{\frac{1}{5}\right\}$ B) $\{1\}$ C) $\{7\}$ D) $\{-1\}$

Answer: B

66) $6x + 4 = 7(x - 2)$

A) {–18} B) {10} C) {–10} D) {18}

Answer: D

67) $\frac{1}{4}(12n + 4) = 3 + 6n$

A) $\left\{-\frac{2}{3}\right\}$ B) $\left\{\frac{4}{9}\right\}$ C) $\left\{\frac{2}{9}\right\}$ D) $\left\{-\frac{4}{3}\right\}$

Answer: A

68) $4(3x + 3) - 26 = 8x - 2$

A) {–3} B) {48} C) {3} D) {12}

Answer: C

69) $8x + 5(-3x - 5) = -23 - 9x$

A) {1} B) $\{-24\}$ C) {– 1} D) $\{3\}$

Answer: A

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70) $-77(x + 5) = -35(x + 11)$

A) {0} B) {–77} C) {1} D) {–112}

Answer: A

71) $5(x + 3) = 6(x - 6)$

A) {1} B) {0} C) {51} D) {–21}

Answer: C

72) $3(2z - 4) = 5(z + 5)$

A) {16} B) {–13} C) {37} D) {13}

Answer: C

73) $\frac{1}{5}(x + 6) = \frac{1}{7}(x + 8)$

A) {–12} B) {1} C) {–1} D) {3}

Answer: C

74) $-\frac{1}{6}(x + 18) + \frac{1}{8}(x + 8) = x - 9$

A) $\left\{\frac{24}{5}\right\}$ B) $\left\{\frac{168}{25}\right\}$ C) $\left\{\frac{312}{25}\right\}$ D) $\left\{\frac{264}{25}\right\}$

Answer: B

75) $-\frac{1}{3}(x + 6) + \frac{1}{4}(x + 4) = x - 2$

A) $\left\{\frac{60}{13}\right\}$ B) $\left\{\frac{12}{13}\right\}$ C) $\left\{\frac{36}{13}\right\}$ D) $\left\{-\frac{12}{13}\right\}$

Answer: B

76) $-\frac{1}{4}x - \left(x - \frac{1}{5}\right) = \frac{1}{20}(x - 8)$

A) $\left\{\frac{2}{13}\right\}$ B) $\left\{-\frac{6}{7}\right\}$ C) $\left\{\frac{1}{2}\right\}$ D) $\left\{\frac{6}{13}\right\}$

Answer: D

77) $6(x + 5) = 7[x - (3 - x)]$

A) $\left\{\frac{15}{4}\right\}$ B) $\left\{\frac{51}{8}\right\}$ C) $\left\{-\frac{51}{8}\right\}$ D) $\left\{-\frac{15}{4}\right\}$

Answer: B

78) $-4(4x + 5) - 5 = -4(x + 1) + 2x$

A) $\left\{\frac{2}{7}\right\}$ B) $\left\{-\frac{1}{14}\right\}$ C) $\left\{-\frac{3}{2}\right\}$ D) $\left\{-\frac{7}{6}\right\}$

Answer: C

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Solve the problem.

79) There is a formula that gives a correspondence between women's shoe sizes in the United States and those in Italy. Find the US size for an Italian size of 38 by solving the equation $38 = 2(x + 12)$, where x represents the size in the United States.

A) 3.5 B) 7 C) 14 D) 88

Answer: B

80) Find the Celsius temperature (to the nearest degree) when Fahrenheit temperature is 95° by solving the equation $95 = \frac{9}{5}C + 32$, where F is the Fahrenheit temperature (in degrees) and C is the Celsius temperature.

A) 49° B) 35° C) 203° D) 177°

Answer: B

81) A rectangular Persian carpet has a perimeter of 244 inches. The length of the carpet is 30 inches more than the width. Solve the equation $244 = 2w + 2(w + 30)$ to find the width, w, of the carpet. Then find the length, $w + 30$, of the carpet.

A) Length is 106 in., width is 76 in. B) Length is 122 in., width is 92 in.
C) Length is 137 in., width is 107 in. D) Length is 76 in., width is 46 in.

Answer: D

82) In one state, speeding fines are determined by the formula $F = 6(x - 60) + 50$, where F is the cost, in dollars, of the fine if a person is caught driving x miles per hour. If the fine comes to $206, how fast was the person driving.

A) 88 miles per hour B) 96 miles per hour C) 84 miles per hour D) 86 miles per hour

Answer: D

83) When you buy an item on which sales tax is charged, the total cost is calculated by the formula: $T = P + \frac{S}{100}P$, where T is the total cost, P is the item's price, and S is the sales tax rate (as a percent). If you pay $20.9 for an item priced at $20, what was the tax rate?

A) 4.5% B) 6.5% C) 5.5% D) 2.25%

Answer: A

Solve the equation. Check your solution.

84) $\frac{1}{3}x - \frac{1}{3} = -5$

A) {−16} B) {−14} C) {14} D) {16}

Answer: B

85) $\frac{4x}{7} + 7 = \frac{1}{6}$

A) $\left\{\frac{7}{4}\right\}$ B) $\left\{\frac{1}{4}\right\}$ C) $\left\{-\frac{293}{24}\right\}$ D) $\left\{-\frac{287}{24}\right\}$

Answer: D

86) $\frac{2x}{5} - \frac{x}{3} = 3$

A) {−90} B) {45} C) {90} D) {−45}

Answer: B

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87) $x - \frac{5}{6}x - 4 = 1$

A) {–30} B) {–18} C) {18} D) {30}

Answer: D

88) $\frac{2}{5}x - \frac{1}{3}x = 4$

A) {–60} B) {120} C) {60} D) {–120}

Answer: C

89) $\frac{1}{4}x - \frac{3}{8}x = 4$

A) {32} B) {–28} C) {28} D) {–32}

Answer: D

90) $\frac{b}{12} - 3 = -2$

A) {12} B) {–14} C) {–12} D) {14}

Answer: A

91) $\frac{a}{2} - \frac{1}{2} = -3$

A) {7} B) {–5} C) {5} D) {–7}

Answer: B

92) $\frac{3}{8}x + \frac{3}{4} = \frac{1}{4}x$

A) {–8} B) {8} C) {6} D) {–6}

Answer: D

93) $\frac{5n - 8}{5} = 8$

A) $\left\{\frac{32}{5}\right\}$ B) $\left\{\frac{5}{32}\right\}$ C) $\left\{\frac{5}{48}\right\}$ D) $\left\{\frac{48}{5}\right\}$

Answer: D

94) $\frac{y}{5} - \frac{2}{5} = \frac{1}{3} - y$

A) $\left\{\frac{11}{6}\right\}$ B) $\left\{\frac{7}{6}\right\}$ C) $\left\{-\frac{11}{18}\right\}$ D) $\left\{\frac{11}{18}\right\}$

Answer: D

95) $\frac{x}{5} - 8 = \frac{x}{4} - 2$

A) $\left\{-\frac{3}{10}\right\}$ B) {120} C) $\left\{\frac{3}{10}\right\}$ D) {– 120}

Answer: D

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96) $\frac{4(7-x)}{3} = x$

A) $\left\{\frac{28}{5}\right\}$ B) {7} C) {4} D) {–4}

Answer: C

97) $\frac{3(y-2)}{5} = 1 - 3y$

A) $\left\{-\frac{11}{18}\right\}$ B) $\left\{\frac{11}{6}\right\}$ C) $\left\{\frac{7}{6}\right\}$ D) $\left\{\frac{11}{18}\right\}$

Answer: D

98) $\frac{6x+7}{2} + \frac{3}{2} = -\frac{4x}{3}$

A) $\left\{-\frac{6}{13}\right\}$ B) $\left\{\frac{6}{13}\right\}$ C) $\left\{-\frac{15}{13}\right\}$ D) {– 3}

Answer: C

99) $\frac{r+6}{3} = \frac{r+8}{6}$

A) {3} B) {–4} C) {–12} D) {4}

Answer: B

100) $\frac{5x-2}{3} = \frac{4x}{6}$

A) $\left\{\frac{2}{3}\right\}$ B) $\left\{-\frac{2}{7}\right\}$ C) $\left\{-\frac{2}{3}\right\}$ D) $\left\{\frac{2}{7}\right\}$

Answer: A

101) $\frac{2}{3}(3x-6) = -\frac{1}{3}x$

A) $\left\{-\frac{12}{5}\right\}$ B) $\left\{\frac{7}{12}\right\}$ C) $\left\{\frac{12}{7}\right\}$ D) $\left\{-\frac{5}{12}\right\}$

Answer: C

102) $\frac{5x-3}{2} + \frac{x}{14} = \frac{x}{7} - 5$

A) $\left\{-\frac{49}{33}\right\}$ B) $\left\{\frac{91}{34}\right\}$ C) $\left\{-\frac{49}{34}\right\}$ D) $\left\{-\frac{49}{36}\right\}$

Answer: C

103) –20.4 = –3.4x

A) {6} B) {17} C) {–17} D) {2}

Answer: A

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104) $7.6x = 2128$

A) {28} B) {184.8} C) {2.8} D) {280}

Answer: D

105) $-7.2x = 21.6$

A) {−30} B) {3} C) {−0.3} D) {−3}

Answer: D

106) $x + 9.4x = 208$

A) {20} B) {2} C) {21} D) {29.4}

Answer: A

107) $1.1x - 4.1 = 0.6x + 0.75$

A) {−0.103} B) {9.603} C) {9.7} D) {9.69}

Answer: C

108) $0.50x - 0.20(20 + x) = 0.25(20)$

A) {20} B) {40} C) {15} D) {30}

Answer: D

109) $-1.03(30) + 0.80x = 0.30(30 + x)$

A) {90} B) {70} C) {40} D) {80}

Answer: D

110) $-0.01y + 0.11(3000 - y) = 0.13y$

A) {825} B) {1320} C) {3960} D) {82.5}

Answer: B

111) $5 + 0.4(3 - y) = 0.9y - 4(y - 0.4)$

A) $\left\{-\frac{46}{27}\right\}$ B) $\left\{-\frac{22}{7}\right\}$ C) $\left\{-\frac{34}{9}\right\}$ D) $\left\{-\frac{46}{21}\right\}$

Answer: A

Solve the equation. State whether the equation is a contradiction, an identity, or a conditional equation.

112) $-8x + 4 + 6x = -2x + 9$

A) all real numbers; identity
B) {5}; conditional equation
C) ∅ or { }; contradiction
D) {−4}; conditional equation

Answer: C

113) $4x - 4 + 2x + 5 = 8x - 2x - 2$

A) {0}; conditional equation
B) all real numbers; identity
C) {1}; conditional equation
D) ∅ or { }; contradiction

Answer: D

114) $6(x + 4) = (6x + 24)$

A) ∅ or { }; contradiction
B) all real numbers; identity
C) {48}; conditional equation
D) {0}; conditional equation

Answer: B

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115) $-4(x - 2) - 55 = 5x - 9(x + 3)$

A) ∅ or { }; contradiction
B) {–82}; conditional equation
C) all real numbers; identity
D) {–28}; conditional equation

Answer: A

116) $19x + 7(x + 1) = 26(x + 1) - 19$

A) {0}; conditional equation
B) {1}; conditional equation
C) all real numbers; identity
D) ∅ or { }; contradiction

Answer: C

117) $-7.1m + 2.2 + 11m = 1.9 + 3.9m + 0.3$

A) {–0.1}; conditional equation
B) ∅ or { }; contradiction
C) {0}; conditional equation
D) all real numbers; identity

Answer: D

118) $0.03(4x + 4) = 0.12(x + 7) - 0.72$

A) ∅ or { }; contradiction
B) {0.12}; conditional equation
C) all real numbers; identity
D) {–0.72}; conditional equation

Answer: C

119) $\frac{2x + 7}{2} = \frac{7x - 5}{7}$

A) {49}; conditional equation
B) {–10}; conditional equation
C) all real numbers; identity
D) ∅ or { }; contradiction

Answer: D

120) $\frac{x}{5} + \frac{1}{3} = \frac{6x + 10}{30}$

A) $\left\{-\frac{5}{3}\right\}$; conditional equation
B) all real numbers; identity
C) $\left\{\frac{5}{3}\right\}$; conditional equation
D) ∅ or { }; contradiction

Answer: B

Solve the problem.

121) Center City East Parking Garage has a capacity of 251 cars more than Center City West Parking Garage. If the combined capacity for the two garages is 1229 cars, find the capacity for each garage by solving the equation $x + (x + 251) = 1229$, where x represents the capacity for Center City West Parking Garage.

A) Center City East: 479 cars
Center City West: 750 cars
B) Center City East: 750 cars
Center City West: 479 cars
C) Center City East: 489 cars
Center City West: 740 cars
D) Center City East: 740 cars
Center City West: 489 cars

Answer: D

122) During an intramural basketball game, Team A scored 17 fewer points than Team B. Together, both teams scored a total of 147 points. Determine how many points Team A scored during the game by solving the equation $x + (x - 17) = 147$ where x represents the number of points Team B scored.

A) 73 points
B) 66 points
C) 82 points
D) 65 points

Answer: D

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123) 30 marbles are to be divided into three bags so that the second bag has three times as many marbles as the first bag and the third bag has twice as many as the first bag. If x is the number of marbles in the first bag, find the number of marbles in each bag by solving the equation $x + 3x + 2x = 30$.

A) 1st bag = 5 marbles; 2nd bag = 10 marbles; 3rd bag = 15 marbles
B) 1st bag = 6 marbles; 2nd bag = 18 marbles; 3rd bag = 12 marbles
C) 1st bag = 5 marbles; 2nd bag = 15 marbles; 3rd bag = 10 marbles
D) 1st bag = 6 marbles; 2nd bag = 14 marbles; 3rd bag = 10 marbles

Answer: C

124) There are 24 more sophomores than juniors in an 8 AM algebra class. If there are 74 students in this class, find the number of sophomores and the number of juniors in the class by solving the equation $x + (x + 24) = 74$, where x represents the number of juniors in the class.

A) 49 sophomores; 25 juniors
B) 98 sophomores; 50 juniors
C) 74 sophomores; 50 juniors
D) 25 sophomores; 49 juniors

Answer: A

125) An isosceles triangle contains two angles of the same measure. If the measure of the third angle is 51° less than the measure of either of the other two angles, find the measure of one of the identical angles by solving the equation $2x + (x - 51) = 180$, where x represents the measure of one of the identical angles.

A) 77°
B) 115.5°
C) 57°
D) 26°

Answer: A

126) An auto repair shop charged a customer $267 to repair a car. The bill listed $57 for parts and the remainder for labor. If the cost of labor is $30 per hour, determine how many hours, x, of labor it took to repair the car by solving the equation $267 = 30x + 57$.

A) 7.5 hr
B) 6 hr
C) 8 hr
D) 7 hr

Answer: D

127) Rooms in Dormitory A each have 120 square feet of floor space. These rooms have twice as much floor space as each room in Dormitory B. Determine about how much floor space a room in Dormitory B has by solving the equation $2x = 120$.

A) 122 sq. feet
B) 60 sq. feet
C) 118 sq. feet
D) 240 sq. feet

Answer: B

128) A 6–ft. board is cut into 2 pieces so that one piece is 2 feet longer than 3 times the shorter piece. If the shorter piece is x feet long, find the lengths of both pieces by solving the equation $x + (3x + 2) = 6$.

A) shorter piece: 1 ft; longer piece: 5 ft
B) shorter piece: 3 ft; longer piece: 18 ft
C) shorter piece: 6 ft; longer piece: 20 ft
D) shorter piece: 16 ft; longer piece: 18 ft

Answer: A

129) A rectangular carpet has a perimeter of 270 inches. The length of the carpet is 101 inches more than the width. Determine the dimensions of the carpet by solving the equation $2w + 2(w + 101) = 270$, where w represents the carpet width.

A) 118 by 17 in.
B) 76 by 93 in.
C) 126.5 by 135 in.
D) 118 by 135 in.

Answer: A

130) The perimeter of a triangle is 65 centimeters. Find the lengths of its sides, if the longest side is 7 centimeters longer than the shorter side, and the remaining side is 4 centimeters longer than the shorter side.

A) 27 cm, 31 cm, 34 cm
B) 18 cm, 22 cm, 25 cm
C) 18 cm, 22 cm, 29 cm
D) 27 cm, 31 cm, 38 cm

Answer: B

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131) The total cost, including 7.3% sales tax, for the purchase of a cell phone was $122.32. Find the price of the cell phone, c, before sales tax, by solving the equation $c + 0.073c = \$122.32$.

A) \$114 B) \$122.32 C) \$1140 D) \$11.4

Answer: A

132) Juan recently received a 4.1% pay increase. His hourly wage is now \$11.45. Use the equation $w + 0.041w = 11.45$ to find his hourly wage before the pay increase.

A) \$11.45 B) \$11 C) \$110 D) \$1.10

Answer: B

133) Anita recently received a 4.7% pay cut. Her hourly wage is now \$16.20. Use the equation $w - 0.047w = 16.20$ to find her hourly wage before the pay cut.

A) \$16.20 B) \$17 C) \$1.70 D) \$170

Answer: B

134) A pair of jeans you want to purchase has been marked down 35%. The jeans now cost \$72.15. To find the price before the markdown, solve the equation $c - 0.35c = 72.15$.

A) \$146 B) \$11.10 C) \$116 D) \$111

Answer: D

Substitute the given values into the formula and then evaluate to find the unknown quantity. Label units in your answer. If the answer is not exact, round your answer to the nearest hundredth.

135) $P = 2L + 2W$; $P = 22$, $W = 8$

A) 14 units B) 3 units C) 7 units D) 11 units

Answer: B

136) $V = \frac{1}{3}Bh$; $V = 24$, $h = 3$

A) 8 units B) 27 units C) 72 units D) 24 units

Answer: D

137) $I = prt$; $I = 79.2$, $p = 220$, $r = 0.09$

A) 4 units B) 15.6816 units C) 0.4 units D) 1568.16 units

Answer: A

138) $A = \frac{1}{2}(b + B)h$; $A = 93$, $b = 17$, $B = 14$

A) $15\frac{1}{2}$ units B) 238 units C) $77\frac{1}{2}$ units D) 6 units

Answer: D

139) Use the formula $F = \frac{9}{5}C + 32$ to convert 5° C to degrees Fahrenheit.

A) 41° F B) −23° F C) 20.6° F D) −15° F

Answer: A

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140) Use the formula $C = \frac{5}{9}(F - 32)$ to convert 14° F to degrees Celsius.

A) −10° C B) 57.2° C C) −24.2° C D) 25.6° C

Answer: A

141) Find the perimeter of a rectangle if the length, L, is 7 meters and the width, W, is 8 meters. Use the formula P = 2L + 2W.

A) 15 m B) 112 m C) 22 m D) 30 m

Answer: D

142) Find (a) the perimeter and (b) the area of a square with side lengths s = 21. Use P = 4s for perimeter and $A = s^2$ for area.

A) (a) 84 units (b) 42 units^2 B) (a) 441 units (b) 84 units^2 C) (a) 84 units (b) 441 units^2 D) (a) 42 units (b) 441 units^2

Answer: C

143) The formula S = P − 0.1P gives the sale price, S, of a shirt that was marked down 10% from the original price, P. Find the sale price of a shirt that originally cost $42.

A) $41.90 B) $43.00 C) $46.20 D) $37.80

Answer: D

Solve the problem.

144) You are standing at the juice section of your local grocery store trying to decide which is the "better" buy: 16 ounces of Brand X for $4.80 or 12 ounces of Brand Y for $3.36. Which would you choose to get the best deal?

A) Not enough information is provided. B) Brand Y
C) The brands are equal values. D) Brand X

Answer: B

145) The average price (in dollars) to rent a studio in a certain city can be approximated by the equation p = 34.3t + 636 where t is the number of years since 1990. Solve this equation for t and use the new equation to determine approximately what year it will be when the average price of a studio in this city reaches $1322.00.

A) 2012 B) 2010 C) 2013 D) 2011

Answer: B

146) Suppose economists use as a model of a country's economy the equation

C = 0.6976D + 5.8448

where C represents the consumption of products in billions of dollars and D represents disposable income in billions of dollars. Solve the equation for D and use the result to determine the disposable income D if the consumption C is $7.56 billion. Round your answer to the nearest tenth of a billion.

A) $11.1 billion B) $5.0 billion C) $2.5 billion D) $2.3 billion

Answer: C

147) How long would it take to drive 1040 kilometers if your average rate of speed was 80 kilometers per hour? Use the formula d = rt.

A) 14 hr B) 832 hr C) 112 hr D) 13 hr

Answer: D

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148) A contestant in a 20–mile race finished in 7 hours. What was her average rate during the race? Use the formula d = rt. (Round to the nearest tenth, if necessary.)

A) 140 mph B) 13 mph C) 0.4 mph D) 2.9 mph

Answer: D

149) Nathan invested his $6000 poker winnings in a 5 year Certificate of Deposit at a rate of 0.04. Use the formula I = Prt to find the amount of interest Nathan's investment will earn.

A) $6,240 B) $1,200 C) $7,200 D) $240

Answer: B

150) Farmer Joe just replaced the fencing for his pig pen. He used exactly 48 feet of fencing for the rectangular shaped pen. If the length of the pen is 15 feet, what is the width of the pen? Use the formula P = 2L + 2W.

A) $3\frac{1}{5}$ ft B) 9 ft C) 18 ft D) 39 ft

Answer: B

151) Jim runs one time around a circular track that has a radius of 7 kilometers, and Chris runs two times around a circular track with a radius of 4 kilometers. Who ran the farther distance? Use the formula $C = 2\pi r$ and 3.14 as an approximation for π.

A) Jim ran a farther distance.
B) Jim and Chris both ran the same distance.
C) Chris ran a farther distance.

Answer: C

152) You have a cylindrical cooking pot whose radius is 6 inches and whose height is 7 inches. How many full cans of soup will fit into the pot if each can has holds 10 cubic inches of soup? Use the formula $V = \pi r^2 h$ and 3.14 as an approximation for π.

A) 79 cans of soup B) 25 cans of soup C) 80 cans of soup D) 26 cans of soup

Answer: A

153) The volume of a sphere with radius r is given by the formula $V = \frac{4}{3}\pi r^3$. Find the volume of a sphere with radius 2 meters. Use 3.14 for the value of π .

A) 100.47 m^3 B) 33.49 m^3 C) 10.67 m^3 D) 16.75 m^3

Answer: B

154) The area of a circle with radius r is given by the formula $A = \pi r^2$. Find the area of a circle with radius 2 centimeters. Use 3.14 for π.

A) 5.14 cm^2 B) 19.72 cm^2 C) 6.28 cm^2 D) 12.56 cm^2

Answer: D

155) The volume of a right circular cylinder is given by the formula $V = \pi r^2 h$, where r is radius and h is height. Find the height of a right circular cylinder whose volume is 36π cubic feet and whose radius is 3 feet.

A) 4 feet B) 3 feet C) 12 feet D) 16 feet

Answer: A

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156) Joanie drives a truck for the local trucking company in Seattle and earns $33 per hour. On one particular trip, she leaves Seattle at 8 a.m. and travels 104 miles to the warehouse. At the warehouse, she waits for 4 hours for her truck to be loaded and then returns to Seattle. She estimates that she can travel at an average speed of 52 miles per hour. Use the formula d = rt to determine how much money Joanie expects to earn from her trip if she includes the time she waits for the truck to be loaded.

A) $198 B) $264 C) $132 D) $66

Answer: B

157) A gallon of paint can cover about 400 square feet. Find the number of gallons of paint that John should purchase to paint two coats of paint on all the walls and the ceiling of a room that measures 10 feet by 9 feet with a 9 foot ceiling. Remember, you cannot purchase a partial container of paint.

A) 4 gal B) 3 gal C) 2 gal D) 0 gal

Answer: C

Solve the formula for the stated variable.

158) $C = 2\pi r$; solve for r

A) $r = \frac{C}{2\pi}$ B) $r = \frac{C\pi}{2}$ C) $r = \frac{2\pi}{C}$ D) $r = 2C\pi$

Answer: A

159) $A = lw$; solve for l

A) $l = Aw$ B) $l = A - w$ C) $l = \frac{A}{w}$ D) $l = \frac{w}{A}$

Answer: C

160) $v = LWH$; solve for H

A) $H = v - LW$ B) $H = \frac{v}{LW}$ C) $H = \frac{v/L}{W}$ D) $H = \frac{LW}{v}$

Answer: B

161) $d = rt$; solve for r

A) $r = d - t$ B) $r = \frac{t}{d}$ C) $r = dt$ D) $r = \frac{d}{t}$

Answer: D

162) $I = Prt$; solve for t

A) $t = P - Ir$ B) $t = \frac{P - I}{1 + r}$ C) $t = \frac{P - 1}{Ir}$ D) $t = \frac{I}{Pr}$

Answer: D

163) $A = \frac{1}{2}bh$; solve for h

A) $h = \frac{Ab}{2}$ B) $h = \frac{2A}{b}$ C) $h = \frac{A}{2b}$ D) $h = \frac{b}{2A}$

Answer: B

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164) $V = \frac{1}{3}Ah$; solve for A

A) $A = \frac{h}{3V}$ B) $A = \frac{3h}{V}$ C) $A = \frac{3V}{h}$ D) $A = \frac{V}{3h}$

Answer: C

165) $P = a + b + c$; solve for b

A) $b = P - a - c$ B) $b = a + c - P$ C) $b = P + a - c$ D) $b = P + a + c$

Answer: A

166) $P = 2L + 2W$; solve for W

A) $W = P - 2L$ B) $W = P - L$ C) $W = \frac{P - L}{2}$ D) $W = \frac{P - 2L}{2}$

Answer: D

167) $A = P + PRT$; solve for T

A) $T = \frac{PR}{A - P}$ B) $T = \frac{P - A}{PR}$ C) $T = \frac{A - P}{PR}$ D) $T = \frac{A}{R}$

Answer: C

168) $F = \frac{9}{5}C + 32$; solve for C

A) $C = \frac{F - 32}{9}$ B) $C = \frac{9}{5}(F - 32)$ C) $C = \frac{5}{9}(F - 32)$ D) $C = \frac{5}{F - 32}$

Answer: C

169) $S = 2\pi rh + 2\pi r^2$; solve for h

A) $h = S - r$ B) $h = 2\pi(S - r)$ C) $h = \frac{S - 2\pi r^2}{2\pi r}$ D) $h = \frac{S}{2\pi r} - 1$

Answer: C

170) $A = \frac{1}{2}h(B + b)$; solve for b

A) $b = 2A - Bh$ B) $b = \frac{A - Bh}{h}$ C) $b = \frac{2A - Bh}{h}$ D) $b = \frac{2A + Bh}{h}$

Answer: C

171) $S = 4\pi r^2$; solve for r^2

A) $r^2 = \frac{S}{4\pi}$ B) $r^2 = \frac{S}{\pi} - 4$ C) $r^2 = \frac{S}{8\pi}$ D) $r^2 = S - 4\pi$

Answer: A

Solve for y.

172) $3x - 5y = 8$

A) $y = \frac{3x + 8}{5}$ B) $y = \frac{8 - 3x}{5}$ C) $y = 3x - 8$ D) $y = \frac{3x - 8}{5}$

Answer: D

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173) $4x + 5y = 17$

A) $y = \frac{4}{5}x - \frac{17}{5}$ B) $y = \frac{4x + 17}{5}$ C) $y = \frac{4x - 17}{5}$ D) $y = \frac{17 - 4x}{5}$

Answer: D

174) $x - \frac{1}{11}y = -7$

A) $y = x + 7$ B) $y = 11x + 7$ C) $y = x + 77$ D) $y = 11x + 77$

Answer: D

Translate the phrase to an algebraic expression. Let x represent the unknown number.

175) The sum of a number and 49

A) 49 B) 49 + x C) 49 – x D) 49x

Answer: B

176) 53 less a number x

A) 53 B) x + 53 C) 53 – x D) 53x

Answer: C

177) 31 less than a number

A) 31 – x B) 31 C) x – 31 D) 31x

Answer: C

178) 8 times a number

A) 8x B) 8 + x C) $\frac{8}{x}$ D) 8 – x

Answer: A

179) The product of 4 and a number

A) $\frac{4}{x}$ B) 4 + x C) 4 – x D) 4x

Answer: D

180) 3 less than 7 times a number

A) 3x – 7 B) 7 – 3x C) 7x – 3 D) 3 – 7x

Answer: C

181) 6 more than 7 times a number

A) 7(6 + x) B) 6x + 7 C) 7x + 6 D) 13x

Answer: C

182) Three times a number x decreased by seven

A) 3x + 7 B) 3x – 7 C) 3 – 7x D) $\frac{3x}{7}$

Answer: B

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183) The quotient of 72 and a number

A) $x - 72$ B) $\frac{72}{x}$ C) $\frac{x}{72}$ D) $72 - x$

Answer: B

184) The product of 11 and a number, added to 6.

A) $11 + 6x$ B) $66x$ C) $66 + x$ D) $6 + 11x$

Answer: D

185) Four times a number, decreased by 39.

A) $4x + 39$ B) $4(x + 39)$ C) $4x - 39$ D) $4(x - 39)$

Answer: C

186) The quotient of 69 and the product of a number and –10.

A) $\frac{-10x}{69}$ B) $\frac{69}{x} - 10$ C) $-690x$ D) $\frac{69}{-10x}$

Answer: D

187) The product of –25 and the sum of a number and 39.

A) $-975x$ B) $-25(x + 39)$ C) $-25x + 39$ D) $-25 + 39x$

Answer: B

188) Six times the sum of a number and –23.

A) $6(x + (-23))$ B) $6+ x + (-23)$ C) $6x - (-23)$ D) $6x + (-23)$

Answer: A

189) The quotient of 27 times a number and –7.

A) $27x - 7$ B) $\frac{1}{-189x}$ C) $\frac{27x}{-7}$ D) $27x + 7$

Answer: C

190) Ten times a number decreased by three–fourths of the same number.

A) $10x - \frac{3}{4}$ B) $\frac{3x}{4} - 10x$ C) $10\left(x - \frac{3}{4}\right)$ D) $10x - \frac{3x}{4}$

Answer: D

191) Three–fourths of a number

A) $\frac{3}{4}x$ B) $\frac{3}{4} - x$ C) $\frac{3}{4} + x$ D) $\frac{3}{4} \div x$

Answer: A

192) two–thirds more than a number

A) $x + \frac{3}{2}$ B) $x + \frac{2}{3}$ C) $\frac{3}{2}x$ D) $\frac{2}{3}x$

Answer: B

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193) 13 less than $\frac{7}{3}$ times a number

A) $\frac{7}{3}(x - 13)$ B) $\frac{7}{3}x - 13$ C) $13\left(x - \left(\frac{7}{3}\right)\right)$ D) $13 - \left(\frac{7}{3}x\right)$

Answer: B

Translate the statement into an equation. Let x represent the unknown number. DO NOT SOLVE.

194) Four times a number added to 9 times the number equals 39.

A) $4x + 9x = 39$ B) $4x - 9x = 39$ C) $4(x + 9) = 39x$ D) $4x(9 + x) = 39$

Answer: A

195) When 3 times a number is subtracted from 7 times the number, the result is 28.

A) $3x(7 - x) = 28$ B) $3x + 7x = 28$ C) $3(x - 7) = 28x$ D) $7x - 3x = 28$

Answer: D

196) If 3 times a number is added to –7, the result is equal to 10 times the number.

A) $10(3x - 7) = -7$ B) $3x + (-7) = 10x$ C) $13x - 10x = 7$ D) $4x + (-7) = 10x$

Answer: B

197) The sum of four times a number and 3 is equal to the difference of twice the number and 1.

A) $4(x + 3) = 2x - 1$ B) $4x + 3 = 2x + 1$ C) $4x - 3 = 2x - 1$ D) $4x + 3 = 2x - 1$

Answer: D

198) The sum of a number and two is negative eleven.

A) $n + 2 = -11$ B) $n - 11 = 2$ C) $2n = -11$ D) $-11 + n = 2$

Answer: A

199) Thirty–six more than the product of three and x yields sixty.

A) $3x + 36 = 60$ B) $36x + 60 = 3$ C) $60x + 3 = 36$ D) $3x + 60 = 36$

Answer: A

200) Five is eight times a number less than twenty–nine.

A) $8n - 29 = 5$ B) $20 - (9 - 8n) = 5$ C) $20 - 9 - 8n = 5$ D) $29 - 8n = 5$

Answer: D

201) Twenty–four less than three times a number is equal to the product of five and the number.

A) $3x - 24 = 5 + x$ B) $24 - 3x = 5x$ C) $24 - 3x = 5 + x$ D) $3x - 24 = 5x$

Answer: D

202) The sum of fifteen and four times a number is the same as the difference of three times the number and seven.

A) $(15 + 4)x = 3(x - 7)$ B) $(15 + 4)x = 3x - 7$ C) $15 + 4x = 3x - 7$ D) $15 + 4x = 3(x - 7)$

Answer: C

203) The difference of four times a number and eight is equal to twenty–three less than the number.

A) $4x - 8 = x - 23$ B) $4x - 8 = 23 - x$ C) $4(x - 8) = 23 - x$ D) $4(x - 8) = x - 23$

Answer: A

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204) The quotient of –6 and a number, decreased by 10 is 49.

A) $\frac{x - 10}{-6} = 49$ B) $\frac{-6}{x - 10} = 49$ C) $\frac{-6}{x} - 10 = 49$ D) $\frac{x}{-6} - 10 = 49$

Answer: C

Solve the problem.

205) The sum of a number and two is negative eleven. Find the number.

A) –9 B) 0 C) –13 D) 13

Answer: C

206) Four times a number, added to 5, is 9. Find the number.

A) –1 B) 1 C) 16 D) 4

Answer: B

207) Nine times a number, added to 45, is 126. Find the number.

A) 9 B) 81 C) 729 D) –9

Answer: A

208) Three times the sum of a number and –81 gives –24. Find the number.

A) –35 B) 73 C) –89 D) 19

Answer: B

209) A number subtracted from 19 gives the quotient of –36 and 2. Find the number.

A) 91 B) 1 C) 37 D) 36

Answer: C

210) 3 times a number less than 7 times the same number is 40. Find the number.

A) 10 B) 1.8 C) –10 D) 4

Answer: A

211) The sum of three consecutive integers is 579. Find the numbers.

A) 192, 193, 194 B) 191, 192, 193 C) 193, 194, 195 D) 191, 193, 195

Answer: A

212) The total price of a new RV is $39,843.61. The tax, title, and dealer charges amount to $843.61. Find the price of the RV before the extra charges.

A) $40,687.22 B) $39,000.00 C) $3900.00 D) $38,156.39

Answer: B

213) An inheritance of $38,000 is to be split between Ryan and Molly, with Ryan to receive $2000 more than Molly. How much will each receive?

A) Molly: $20,000; Ryan: $18,000 B) Molly: $18,000; Ryan: $20,000

C) Molly: $19,000; Ryan: $21,000 D) Molly: $19,000; Ryan: $19,000

Answer: B

214) Clancy went shopping for new workout clothing. Her shorts cost $27 less than a pair of running shoes and her jacket cost $10 more than the running shoes. Find the cost of the jacket if Clancy spent $222 on the items, before sales tax.

A) $52.67 B) $79.67 C) $89.67 D) $129.50

Answer: C

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215) The president of a certain university makes three times as much money as one of the department heads. If the total of their salaries is $250,000, find each worker's salary.
A) president's salary = $125,000; department head's salary = $62,500
B) president's salary = $18,750; department head's salary = $6250
C) president's salary = $62,500; department head's salary = $187,500
D) president's salary = $187,500; department head's salary = $62,500

Answer: D

216) 30 marbles are to be divided into three bags so that the second bag has three times as many marbles as the first bag and the third bag has twice as many as the first bag. If x is the number of marbles in the first bag, find the number of marbles in each bag.
A) 1st bag = 5 marbles; 2nd bag = 15 marbles; 3rd bag = 10 marbles
B) 1st bag = 6 marbles; 2nd bag = 14 marbles; 3rd bag = 10 marbles
C) 1st bag = 5 marbles; 2nd bag = 10 marbles; 3rd bag = 15 marbles
D) 1st bag = 6 marbles; 2nd bag = 18 marbles; 3rd bag = 12 marbles

Answer: A

217) A promotional deal for long distance phone service charges a $15 basic fee plus $0.05 per minute for all calls. If Joe's phone bill was $43 under this promotional deal, how many minutes of phone calls did he make? Round to the nearest integer, if necessary.
A) 560 B) 6 C) 1160 D) 1

Answer: A

218) A car rental agency advertised renting a luxury, full–size car for $24.95 per day and $0.39 per mile. If you rent this car for 5 days, how many whole miles can you drive if you only have $200 to spend.
A) 30 B) 192 C) 40 D) 436

Answer: B

219) In a recent International Gymnastics competition, the U.S., China, and Romania were the big winners. If the total number of medals won by each team are three consecutive integers whose sum is 42 and the U.S. won more than China who won more than Romania, how many medals did each team win?
A) U.S.: 44 medals; China: 43 medals; Romania: 42 medals
B) U.S.: 15 medals; China: 14 medals; Romania: 13 medals
C) U.S.: 13 medals; China: 12 medals; Romania: 11 medals
D) U.S.: 16 medals; China: 15 medals; Romania: 14 medals

Answer: B

220) Center City East Parking Garage has a capacity of 258 cars more than Center City West Parking Garage. If the combined capacity for the two garages is 1226 cars, find the capacity for each garage.
A) Center City East: 752 cars
Center City West: 474 cars
B) Center City East: 474 cars
Center City West: 752 cars
C) Center City East: 484 cars
Center City West: 742 cars
D) Center City East: 742 cars
Center City West: 484 cars

Answer: D

221) During an intramural basketball game, Team A scored 13 fewer points than Team B. Together, both teams scored a total of 147 points. How many points did Team A score during the game?
A) 73 points B) 80 points C) 68 points D) 67 points

Answer: D

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222) Going into the final exam, which will count as three tests, Jerome has test scores of 61, 72, 59, 75, and 77. What score does Jerome need on the final in order to earn a C, which requires an average of 70?

A) 72 B) 75 C) 70 D) 68

Answer: A

223) Robin is having her yard landscaped. She obtained an estimate from two landscaping companies. Company A gave an estimate of $200 for materials and equipment rental plus $55 per hour for labor. Company B gave and estimate of $275 for materials and equipment rental plus $40 per hour for labor. Determine how many hours of labor will be required for the two companies to cost the same.

A) 5 hours B) 8 hours C) 9 hours D) 4 hours

Answer: A

Choose a variable to represent one quantity. State what that quantity represents and then express the second quantity in terms of the first.

224) Carla and Alyssa will share the $56 prize.

A) Carla's share: c; Alyssa's share: c + 56
B) Carla's share: c; Alyssa's share: c – 56
C) Carla's share: c; Alyssa's share: 56 – c
D) Carla's share: c; Alyssa's share: 56 – 2c

Answer: C

225) A 20–centimeter piece of rope is cut into two pieces.

A) first piece: z cm; second piece: 20 – z cm
B) first piece: z cm; second piece: 20 – 2z cm
C) first piece: z cm; second piece: z + 20 cm
D) first piece: z cm; second piece: z – 20 cm

Answer: A

226) In the race for Student Body President, Jose received 354 more votes than Angela.

A) Angela's votes: x; Jose's votes: 354x
B) Angela's votes: x; Jose's votes: 354 – x
C) Angela's votes: x; Jose's votes: x + 354
D) Angela's votes: x; Jose's votes: x – 354

Answer: C

227) Ed has $2.66 less than 5 times the amount Israel has.

A) Israel's amount: 2.66 – 5x; Ed's amount: x
B) Israel's amount: 5x – 2.66; Ed's amount: x
C) Israel's amount: x; Ed's amount: 2.66 – 5x
D) Israel's amount: x; Ed's amount: 5x – 2.66

Answer: D

Find the unknown in each percent question.

228) What is 10% of 500?

A) 5 B) 50 C) 500 D) 0.5

Answer: B

229) What is 5% of 300?

A) 150 B) 1.5 C) 15 D) 0.15

Answer: C

230) What is 150% of 410?

A) 615 B) 61,500 C) 6150 D) 61.5

Answer: A

231) What is 8.7% of 3000?

A) 26,100 B) 26 C) 2610 D) 261

Answer: D

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232) What is 31% of 1248?
A) 38,688 B) 386.88 C) 3868.8 D) 38.69
Answer: B

233) What is 86% of 393?
A) 33.8 B) 337.98 C) 33,798 D) 3379.8
Answer: B

234) What is 3.25% of 59?
A) 1.9175 B) 18.15 C) 191.75 D) 19.175
Answer: A

235) 10% of 400 is what number?
A) 0.4 B) 4 C) 40 D) 400
Answer: C

236) 60% of 300 is what number?
A) 1800 B) 180 C) 18 D) 1.8
Answer: B

237) What number is 84% of 178?
A) 14.95 B) 1495.2 C) 149.52 D) 14,952
Answer: C

238) 0.9% of 1000 is what number?
A) 1 B) 900 C) 9 D) 90
Answer: C

239) 5% of 300 is what number?
A) 0.15 B) 150 C) 1.5 D) 15
Answer: D

240) 0.3 is what percent of 16?
A) 0.1875% B) 0.01875% C) 1.875% D) 5333%
Answer: C

241) 335.5 is what percent of 55?
A) 6.1% B) 16.4% C) 1.64% D) 610%
Answer: D

242) What percent of 2.4 is 12?
A) 20.2% B) 15% C) 20% D) 500%
Answer: D

243) What percent of 7 is 0.7?
A) 15.1% B) 10% C) 1000% D) 30%
Answer: B

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244) 929 is what percent of 721?
A) 1.29% B) 128.85% C) 77.61% D) 0.13%
Answer: B

245) 4.8 is what percent of 15.4?
A) 3.21% B) 0.31% C) 31.17% D) 320.83%
Answer: C

246) What percent of 126 is 12.0?
A) 9.52% B) 0.11% C) 0.10% D) 1050.00%
Answer: A

247) 59 is 70% of what number?
A) 41.3 B) 842.9 C) 84.29 D) 8.43
Answer: C

248) 17 is 8% of what number?
A) 21.25 B) 136 C) 2125 D) 212.5
Answer: D

249) 70% of what number is 64?
A) 9.14 B) 44.8 C) 914.3 D) 91.43
Answer: D

Solve the problem.

250) 10% of students at a university attended a lecture. If 5000 students are enrolled at the university, about how many students attended the lecture?
A) 50 students B) 50,000 students C) 500 students D) 5000 students
Answer: C

251) A local animal shelter accepts abandoned cats and dogs. They usually receive three times as many cats as dogs. They estimate that 80% of the cats and 50% of the dogs that come in need some kind of medical treatment. If they treated 261 animals last year, how many cats and dogs did they take in?
A) 270 dogs, 90 cats B) 90 dogs, 93 cats C) 90 dogs, 270 cats D) 270 dogs, 810 cats
Answer: C

252) The population of a town is currently 27,000. This represents an increase of 80% from the population 5 years ago. Find the population of the town 5 years ago. Round to the nearest whole number if necessary.
A) 21,600 B) 15,000 C) 33,750 D) 5400
Answer: B

253) Suppose that 12% of the teachers at a university attended a conference. If 720 teachers attended the conference, how many teachers are at the university?
A) 72,000 teachers B) 72 teachers C) 7200 teachers D) 6000 teachers
Answer: D

254) Alex and Juana went on a 45–mile canoe trip with their class. On the first day they traveled 27 miles. What percent of the total distance did they canoe?
A) 60% B) 200% C) 0.60% D) 2%
Answer: A

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255) Students at Maple School earned $456 selling candles. They want to accumulate $2000 for a club trip. What percent of their goal has been reached?
A) 40% B) 0.228% C) 22.8% D) 4%
Answer: C

256) Alex has saved $588 at the bank. He wants to accumulate $1750 for a trip to soccer camp. What percent of his goal has been reached?
A) 3% B) 33.6% C) 30% D) 0.336%
Answer: B

257) Sales at a local ice cream shop went up 70% in 5 years. If 42,000 ice cream cones were sold in the current year, find the number of ice cream cones sold 5 years ago. (Round to the nearest integer, if necessary.)
A) 60,000 ice cream cones B) 12,600 ice cream cones
C) 29,400 ice cream cones D) 24,706 ice cream cones
Answer: D

258) When Milo got promoted at work, he received a 10% pay raise. He now earns $57,200 per year. What was his annual salary before his raise?
A) $57,200 B) $52,000 C) $5200 D) $5720
Answer: B

259) Ming got a 13% raise in her salary from last year. This year she is earning $73,450. How much did she make last year?
A) $5650 B) $954,850 C) $8450 D) $65,000
Answer: D

260) Because the budget cutbacks, MaryAnn was required to take a 13% pay cut. If she earned $28,000 before the pay cut, find her salary after the pay cut.
A) $27,636 B) $27,963.60 C) $24,360 D) $2436
Answer: C

261) The local clothing store marks up the price that it pays to the clothing manufacturer by 25%. If the selling price of a pair of jeans is $122, how much did the clothing store pay for the jeans?
A) $152.50 B) $97.60 C) $162.67 D) $34.86
Answer: B

262) Logan bought stocks and later sold them for $4,809,300, making a profit of 23%. How much did he pay for the stocks?
A) $899,300 B) $1,106,139 C) $3,910,000 D) $6.647e+09
Answer: C

263) After receiving a discount of 13.5% on its bulk order of typewriter ribbons, John's Office Supply pays $3979. What was the price of the order before the discount? Round to the nearest dollar if necessary.
A) $3442 B) $3641 C) $4516 D) $4600
Answer: D

264) After a 9% price reduction, a boat sold for $30,940. What was the boat's price before the reduction? (Round to the nearest cent, if necessary.)
A) $34,000 B) $2784.60 C) $33,724.60 D) $343,777.78
Answer: A

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265) Inclusive of a 6.7% sales tax, a diamond ring sold for $1920.60. Find the price of the ring before the tax was added. (Round to the nearest cent, if necessary.)

A) $128.68 B) $1800 C) $2049.28 D) $1791.92

Answer: B

266) Find two complementary angles such that the measure of the first angle is x°, and the measure of the second angle is (3x – 2)°.

A) 1st angle = 31°; 2nd angle = 59° B) 1st angle = 22°; 2nd angle = 68°

C) 1st angle = 23°; 2nd angle = 67° D) 1st angle = 22°; 2nd angle = 64°

Answer: C

267) Two angles are complementary. The second angle measures 66° less than the first angle. What is the measure of the first angle?

A) 168° B) 22° C) 78° D) 114°

Answer: C

268) Find two supplementary angles such that the first angle is 9° more than 2 times the second.

A) 123°; 57° B) 27°; 63° C) 60°; 120° D) 57°; 123°

Answer: A

269) Find two supplementary angles such that the first angle is 8 times the second.

A) 20°; 160° B) 22.50°; 157.50° C) 10°; 80° D) 25.71°; 205.71°

Answer: A

270) In a triangle, the measure of the first angle is four times the measure of the second angle. The measure of the third angle is 114° more than the second angle. What is the measure of the first angle?

A) 125° B) 49° C) 11° D) 44°

Answer: D

271) One angle of a triangle is 2 times as large as another. The measure of the third angle is 140° greater than that of the smallest angle. Find the measure of each angle.

A) 10°, 20°, 140° B) 15°, 30°, 135° C) 10°, 20°, 150° D) 20°, 40°, 120°

Answer: C

272) A triangle has angles of (4x)°, (3x + 6)°, and (2x + 3)°. Find the measure of each angle.

A) 19°, 63°, 76° B) 41°, 63°, 76° C) 41°, 57°, 76° D) 19°, 41°, 76°

Answer: B

273) In a triangle, the measure of the second angle is 2 times the measure of the first angle. The measure of the third angle is 28° more an the measure of the first angle. Find the measure of the third angle.

A) 71° B) 56° C) 66° D) 76°

Answer: C

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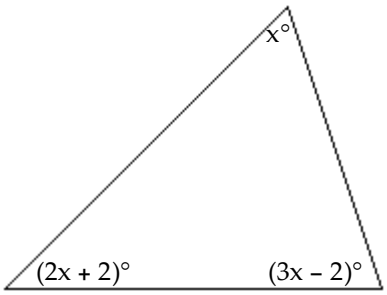
274) Find the measure of each angle of the triangle.



A) 45°, 69.5°, 65.5° B) 90°, 47°, 43° C) 30°, 62°, 88° D) 60°, 62°, 58°

Answer: C

275) In an isosceles triangle, the third angle is 40 less than three times the measure of the base angles. Find the measure of each of the angles of the triangle.

A) 68°, 68°, 44° B) 38°, 38°, 104° C) 43°, 43°, 94° D) 44°, 44°, 92°

Answer: D

276) The smallest angle of an isosceles triangle used in the wood frame of a boat measures 7.2°. The other two angles are larger. What are the measurements of the other two angles in this triangular part of the wood frame?

A) They each measure 172.8°. B) They each measure 3.6°.
C) They each measure 86.4°. D) They each measure 43.2°.

Answer: C

277) To trim the edges of a rectangular table cloth, 36 feet of lace are needed. The length of the table cloth is exactly one–half its width. What are the dimensions of the table cloth?

A) length: 6 feet; width: 12 feet B) length: 3 feet; width: 6 feet
C) length: 12 feet; width: 24 feet D) length: 12 feet; width: 6 feet

Answer: A

278) A rectangular carpet has a perimeter of 246 inches. The length of the carpet is 81 inches more than the width. What are the dimensions of the carpet?

A) 102 by 21 inches B) 112.5 by 123 inches
C) 72 by 93 inches D) 102 by 123 inches

Answer: A

279) The length of a rectangular room is 4 feet longer than twice the width. If the room's perimeter is 176 feet, what are the room's dimensions?

A) Width = 33 ft; length = 70 ft B) Width = 56 ft; length = 120 ft
C) Width = 28 ft; length = 60 ft D) Width = 42 ft; length = 46 ft

Answer: C

280) You have taken up gardening for relaxation and have decided to fence in your new rectangular shaped masterpiece. The length of the garden is 8 meters and 30 meters of fencing is required to completely enclose it. What is the width of the garden?

A) 3.75 m B) 14 m C) 7 m D) 240 m

Answer: C

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281) You are varnishing the background for a mural shaped like a right triangle. The base of the mural is 3 meters and the height of the mural is 7 meters. How many cans of varnish will you need if each can covers 10 square meters?

A) 2 cans of varnish B) 11 cans of varnish C) 3 cans of varnish D) 5 cans of varnish

Answer: A

282) The perimeter of a triangle is 49 centimeters. Find the lengths of its sides, if the longest side is 9 centimeters longer than the shorter side, and the remaining side is 4 centimeters longer than the shorter side.

A) 12 cm, 9 cm, 25 cm B) 3 cm, 8 cm, 12 cm C) 9 cm, 20 cm, 25 cm D) 12 cm, 9 cm, 21 cm

Answer: D

283) An isosceles triangle has exactly two side that are equal in length. If the base measures 35 inches and the perimeter is 93 inches, find the length of the two congruent sides.

A) 14.5 inches B) 58 inches C) 116 inches D) 29 inches

Answer: D

284) Mario's front patio is in the shape of a trapezoid with a height of 58 feet. The longer base is 9 feet longer than the shorter base, and the area of the patio is 5800 square feet. Find the length of each base of the trapezoidal patio.

A) 191 feet; 209 feet B) 95.5 feet; 104.5 feet

C) 95.5 feet; 95.5 feet D) 45.5 feet; 54.5 feet

Answer: B

285) A motorcycle traveling at 60 miles per hour overtakes a car traveling at 40 miles per hour that had a three–hour head start. How far from the starting point are the two vehicles?

A) 6 miles B) 9 miles C) 72 miles D) 360 miles

Answer: D

286) On a road trip, five friends drove at 55 miles per hour to California. On the way home, they took the same route but drove 75 miles per hour. How many miles did they drive on the way to California if the round trip took 10 hours?

A) 5.8 miles B) 634.6 miles C) 317.3 miles D) 2062.5 miles

Answer: C

287) During a hurricane evacuation from the east coast of Georgia, a family traveled 210 miles west. For part of the trip, they averaged 70 mph, but as the congestion got bad, they had to slow to 20 mph. If the total time of travel was 8 hours, how many miles did they drive at the reduced speed?

A) 145 miles B) 140 miles C) 135 miles D) 150 miles

Answer: B

288) A motorcycle traveling at 70 miles per hour overtakes a car traveling at 30 miles per hour that had a three–hour head start. How far from the starting point are the two vehicles?

A) 63 miles B) $5\frac{1}{4}$ miles C) $2\frac{1}{4}$ miles D) $157\frac{1}{2}$ miles

Answer: D

289) Two cars start from the same point and travel in the same direction. If one car is traveling 59 miles per hour and the other car is traveling at 45 miles per hour, how far apart will they be after 9.1 hours?

A) 946.4 miles B) 536.9 miles C) 127.4 miles D) 409.5 miles

Answer: C

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290) Linda and Dave leave simultaneously from the same starting point biking in opposite directions. Linda bikes at 5 miles per hour and Dave bikes at 10 miles per hour. How long will it be until they are 28 miles apart from each other?

A) 1.9 hours B) 5.6 hours C) 0.5 hours D) 0.6 hours

Answer: A

291) Jeff starts driving at 45 miles per hour from the same point that Lauren starts driving at 40 miles per hour. They drive in opposite directions, and Lauren has a half–hour head start. How long will they be able to talk on their cell phones that have a 370–mile range?

A) 4.4 hours B) 4.1 hours C) 4.3 hours D) 4.6 hours

Answer: B

292) Alexander and Judy are 26 miles apart on a calm lake paddling toward each other. Alexander paddles at 4 miles per hour, while Judy paddles at 7 miles per hour. How long will it take them to meet?

A) 2.4 hours B) 1.8 hours C) 8.7 hours D) 15 hours

Answer: A

293) Two trains leave a train station at the same time. One travels north at 10 miles per hour. The other train travels south at 11 miles per hour. In how many hours will the two trains be 172.2 miles apart?

A) 4.1 hours B) 16.4 hours C) 8.7 hours D) 8.2 hours

Answer: D

294) Ken and Kara are 27 miles apart on a calm lake paddling toward each other. Ken paddles at 5 miles per hour, while Kara paddles at 8 miles per hour. How long will it take them to meet?

A) 9 hours B) $1\frac{1}{5}$ hours C) $2\frac{1}{13}$ hours D) 14 hours

Answer: C

295) Carla and Patrick rode stationary bikes for the same amount of time. Carla rode at 7 miles per hour, and Patrick rode at 4.5 miles per hour. If Carla rode 1.88 miles farther than Patrick, how long did they use the bikes?

A) 1 hour B) 0.75 hour C) 0.5 hour D) 0.67 hour

Answer: B

296) At 4 P.M. a freight train leaves Chicago traveling at 40 miles per hour. At 6 P.M., a passenger train leaves the same station traveling in the same direction at 60 miles per hour. How long will it take the passenger train to overtake the freight train?

A) 4 hours B) 2 hours C) 1 hours D) 8 hours

Answer: A

297) A freight train leaves a station traveling at 32 km/h. Two hours later, a passenger train leaves the same station traveling in the same direction at 52 km/h. How long does it takes the passenger train to catch up to the freight train?

A) 5.2 hours B) 2.2 hours C) 3.2 hours D) 4.2 hours

Answer: C

298) A car traveling 67 miles per hour passes a bus traveling 62 in the same direction on the highway. If they maintain their speeds, how long will it take them to be 17.5 miles apart?

A) 3.5 hours B) 4.5 hours C) 7 hours D) 4 hours

Answer: A

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299) Dave can hike on level ground 3 miles an hour faster than he can on uphill terrain. Yesterday, he hiked 29 miles, spending 2 hours on level ground and 5 hours on uphill terrain. Find his average speed on level ground.

A) 4.1 mph B) 3.3 mph C) 6.3 mph D) 6.7 mph

Answer: C

300) An airplane flies 420 miles with the wind and 320 against the wind in the same length of time. If the speed of the wind is 40 mph, what is the speed of the airplane in still air?

A) 301 mph B) 296 mph C) 286 mph D) 128 mph

Answer: B

301) Two friends decide to meet in Chicago to attend a White Sox baseball game. Rob travels 118 miles in the same time that Carl travels 104 miles. Rob's trip uses more interstate highways and he can average 7 mph more than Carl. What is Rob's average speed?

A) 52 mph B) 62 mph C) 56 mph D) 59 mph

Answer: D

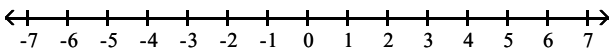
302) Adam and David were both driving east on the same highway. At 3:00 P.M., Adam, traveling at 55 miles per hour, was 20 miles east of David. A little later, David, traveling at 65 miles per hour, passed Adam. At what time did David pass Adam?

A) 9:00 P.M. B) 5:30 P.M. C) 5:00 P.M. D) 7:00 P.M.

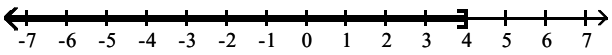
Answer: C

Graph the inequality on a number line, and write the inequality in interval notation.

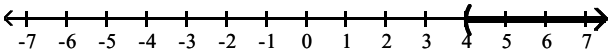
303) $x > 4$



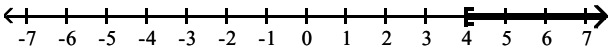
A) $(-\infty, 4]$



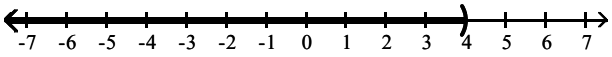
B) $(4, \infty)$



C) $[4, \infty)$



D) $(-\infty, 4)$



Answer: B

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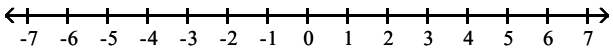
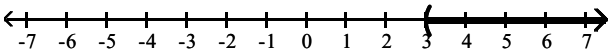
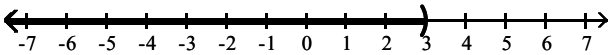
304) $x < 3$



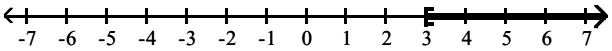
A) $(3, \infty)$



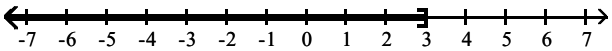
B) $(-\infty, 3)$



C) $[3, \infty)$

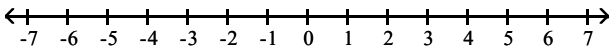


D) $(-\infty, 3]$

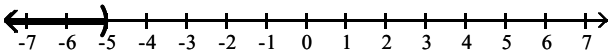


Answer: B

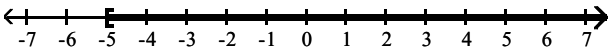
305) $x \geq -5$



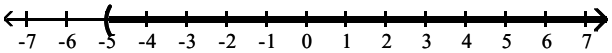
A) $(-\infty, -5)$



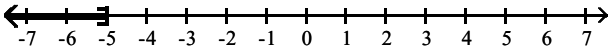
B) $[-5, \infty)$



C) $(-5, \infty)$



D) $(-\infty, -5]$



Answer: B

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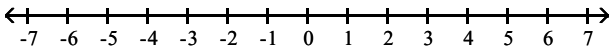
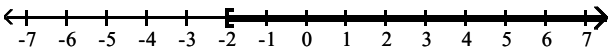
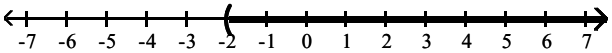
306) $x \leq -2$



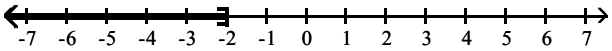
A) $[-2, \infty)$



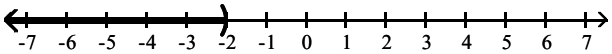
B) $(-2, \infty)$



C) $(-\infty, -2]$

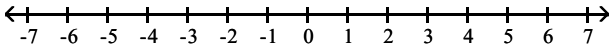


D) $(-\infty, -2)$

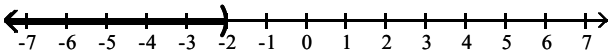


Answer: C

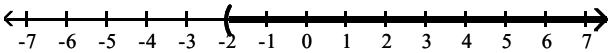
307) $-2 < x$



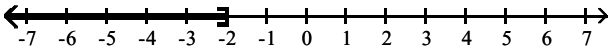
A) $(-\infty, -2)$



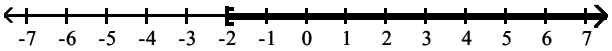
B) $(-2, \infty)$



C) $(-\infty, -2]$



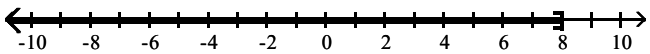
D) $[-2, \infty)$



Answer: B

Use interval notation to express the inequality shown in the graph.

308)



A) $(-\infty, 8]$ B) $[8, \infty)$ C) $(8, \infty)$ D) $(-\infty, 8)$

Answer: A

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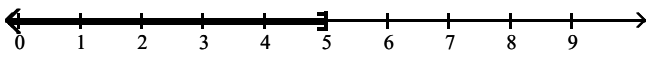
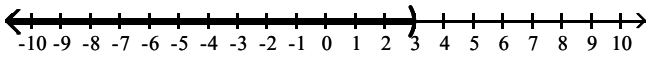
309)



A) (−∞, 5] B) [5, ∞) C) (5, ∞) D) (−∞, 5)

Answer: A

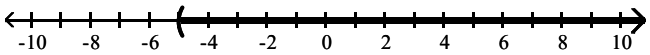
310)



A) (−∞, 3] B) [3, ∞) C) (3, ∞) D) (−∞, 3)

Answer: D

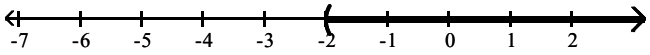
311)



A) (−∞, −5) B) (−5, ∞) C) (−∞, −5] D) [−5, ∞)

Answer: B

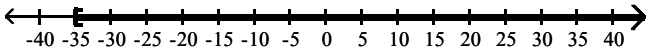
312)



A) [−2, ∞) B) (−∞, −2) C) (−2, ∞) D) (−∞, −2]

Answer: C

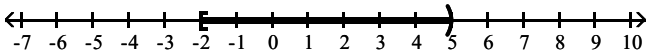
313)



A) (−35, ∞) B) (−∞, −35) C) (−∞, −35] D) [−35, ∞)

Answer: D

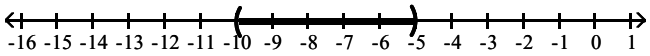
314)



A) (−2, 5) B) (−2, 5] C) [−2, 5) D) [−2, 5]

Answer: C

315)



A) [−10, −5] B) [−10, −5) C) (−10, −5] D) (−10, −5)

Answer: D

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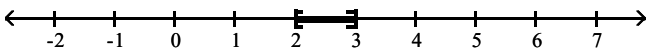
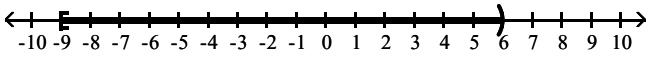
316)



A) (2, 3] B) (2, 3) C) [2, 3) D) [2, 3]

Answer: D

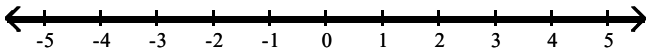
317)



A) (−∞, 6) B) (−9, 6] C) [−9, 6] D) [−9, 6)

Answer: D

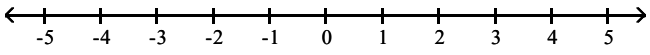
318)



A) [−∞, ∞] B) (−∞, ∞] C) [−∞, ∞) D) (−∞, ∞)

Answer: D

319)

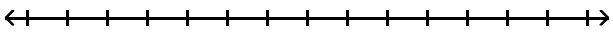


A) [−∞, ∞] B) all real numbers C) ∅ D) (−∞, ∞)

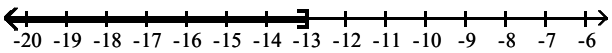
Answer: C

Solve the inequality and express the solution set in interval notation. Graph the solution set on the real number line.

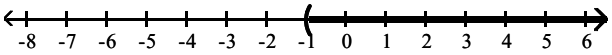
320) $x - 6 < -7$



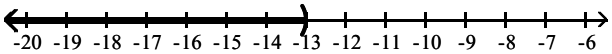
A) (−∞, −13]



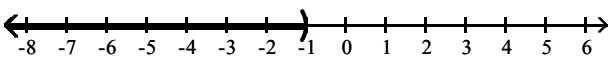
B) (−1, ∞)



C) (−∞, −13)



D) (−∞, −1)



Answer: D

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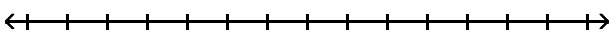
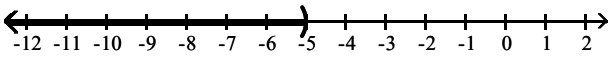
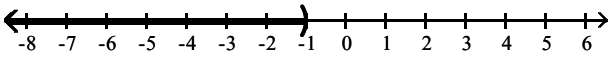
321) $x + 2 \leq -3$



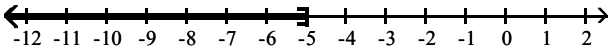
A) $(-\infty, -5)$



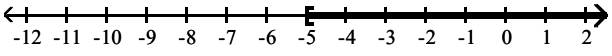
B) $(-\infty, -1)$



C) $(-\infty, -5]$

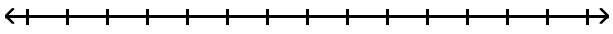


D) $[-5, \infty)$

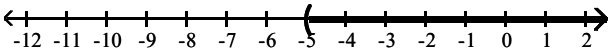


Answer: C

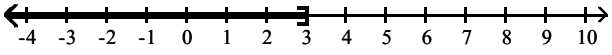
322) $x + 4 < -1$



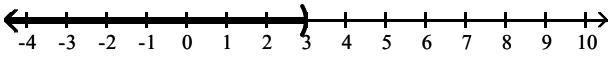
A) $(-5, \infty)$



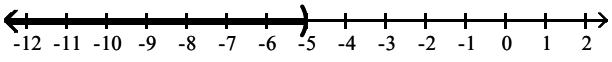
B) $(-\infty, 3]$



C) $(-\infty, 3)$



D) $(-\infty, -5)$



Answer: D

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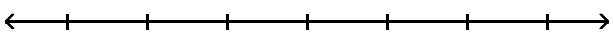
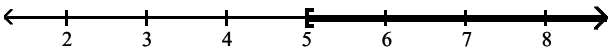
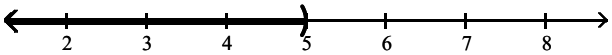
323) $6 > x + 1$



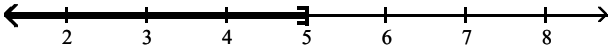
A) $[5, \infty)$



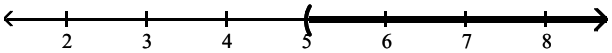
B) $(-\infty, 5)$



C) $(-\infty, 5]$

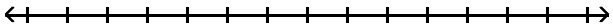


D) $(5, \infty)$

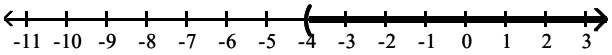


Answer: B

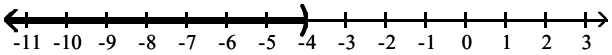
324) $2x \geq 8$



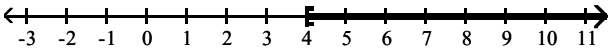
A) $(-4, \infty)$



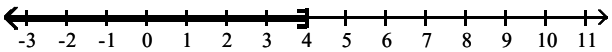
B) $(-\infty, -4)$



C) $[4, \infty)$



D) $(-\infty, 4]$



Answer: C

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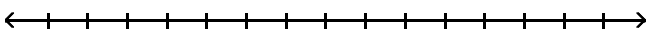
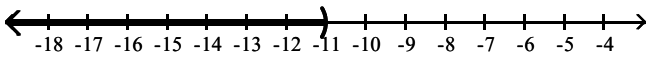
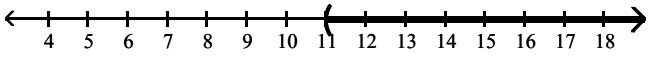
325) $-5x > 55$



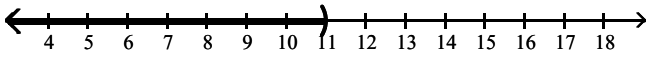
A) $(-\infty, -11)$



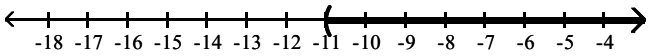
B) $(11, \infty)$



C) $(-\infty, 11)$

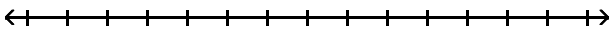


D) $(-11, \infty)$

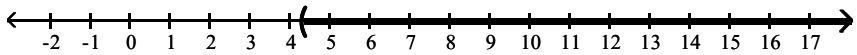


Answer: A

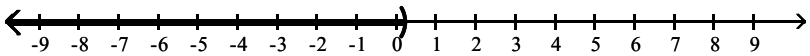
326) $\frac{6}{7}x \geq 5$



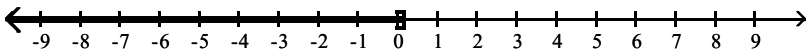
A) $(\frac{30}{7}, \infty)$



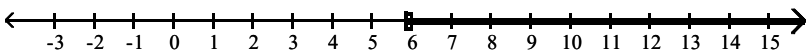
B) $(-\infty, \frac{7}{30})$



C) $(-\infty, \frac{6}{35}]$



D) $[\frac{35}{6}, \infty)$



Answer: D

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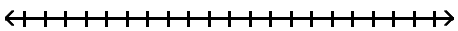
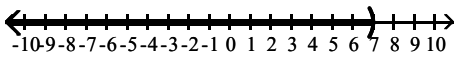
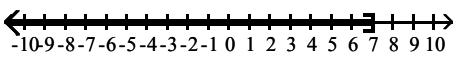
327) $3x + 9 < 30$



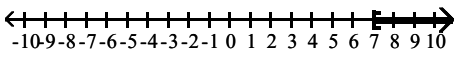
A) $(-\infty, 7)$



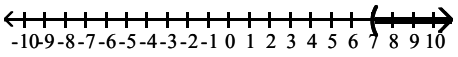
B) $(-\infty, 7]$



C) $[7, \infty)$

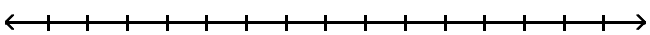


D) $(7, \infty)$

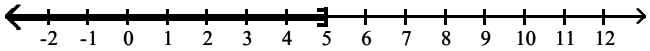


Answer: A

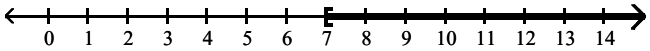
328) $2x - 2 \geq 12$



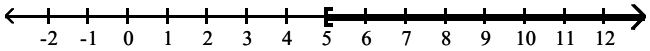
A) $(-\infty, 5]$



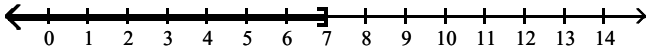
B) $[7, \infty)$



C) $[5, \infty)$



D) $(-\infty, 7]$



Answer: B

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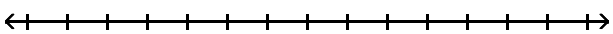
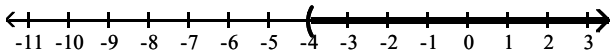
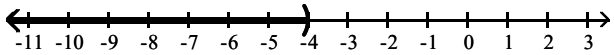
329) $3x > 2x - 4$



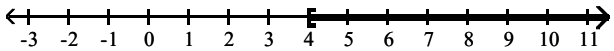
A) $(-4, \infty)$



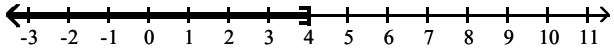
B) $(-\infty, -4)$



C) $[4, \infty)$

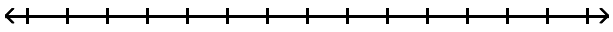


D) $(-\infty, 4]$

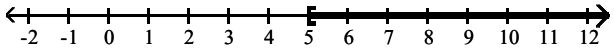


Answer: A

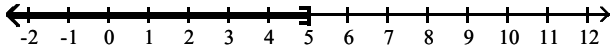
330) $3x - 3 > 2x + 2$



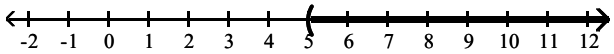
A) $[5, \infty)$



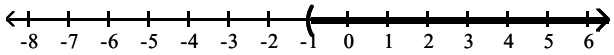
B) $(-\infty, 5]$



C) $(5, \infty)$



D) $(-1, \infty)$



Answer: C

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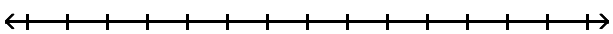
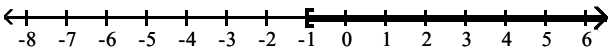
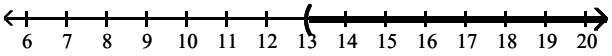
331) $8x + 7 \geq 7x + 6$



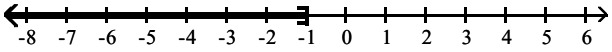
A) $[-1, \infty)$



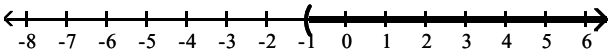
B) $(13, \infty)$



C) $(-\infty, -1]$

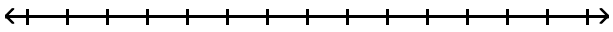


D) $(-1, \infty)$

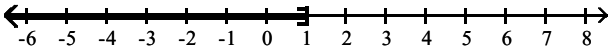


Answer: A

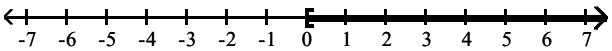
332) $7x - 11 \geq 6x - 11$



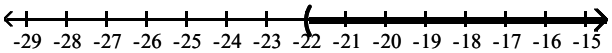
A) $(-\infty, 1]$



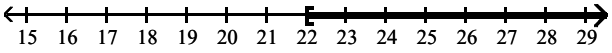
B) $[0, \infty)$



C) $(-22, \infty)$



D) $[22, \infty)$



Answer: B

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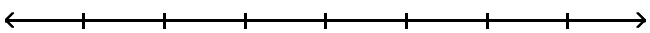
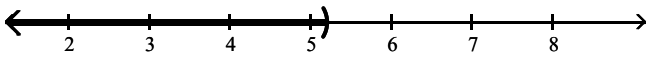
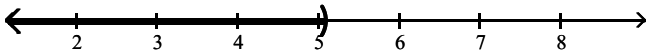
333) $1.3x - 4.8 > 0.8x - 2.25$



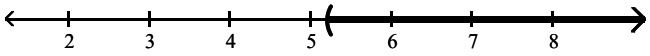
A) $(-\infty, 5.2)$



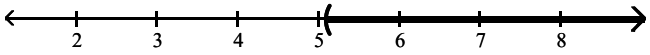
B) $(-\infty, 5.1)$



C) $(5.2, \infty)$

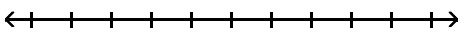


D) $(5.1, \infty)$

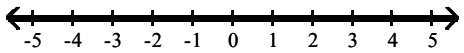


Answer: D

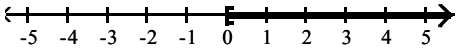
334) $10x \leq 10(x + 7)$



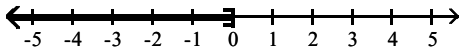
A) $(-\infty, \infty)$



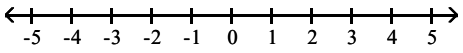
B) $[0, \infty)$



C) $(-\infty, 0]$



D) $\varnothing$



Answer: A

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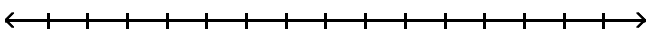
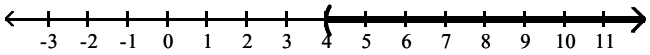
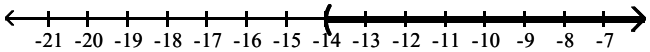
335) $8x - 5 < 9(x - 1)$



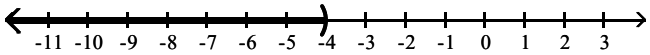
A) $(4, \infty)$



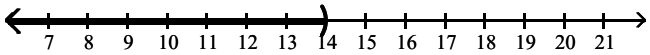
B) $(-14, \infty)$



C) $(-\infty, -4)$

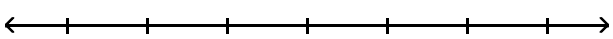


D) $(-\infty, 14)$

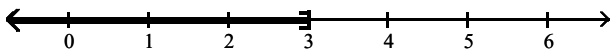


Answer: A

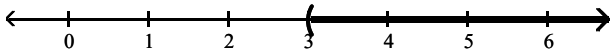
336) $35x + 40 > 5(6x + 11)$



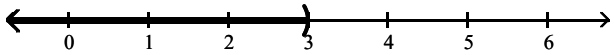
A) $(-\infty, 3]$



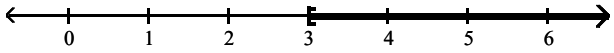
B) $(3, \infty)$



C) $(-\infty, 3)$



D) $[3, \infty)$



Answer: B

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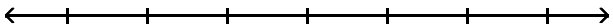
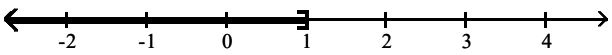
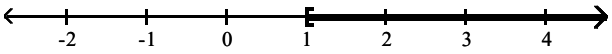
337) $-6(3x + 4) < -24x - 18$



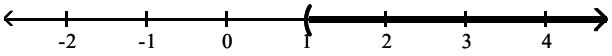
A) $(-\infty, 1]$



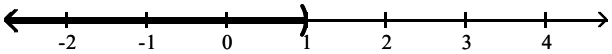
B) $[1, \infty)$



C) $(1, \infty)$

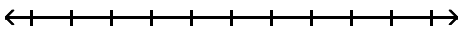


D) $(-\infty, 1)$

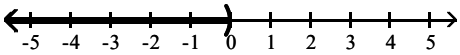


Answer: D

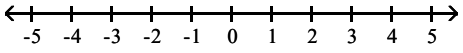
338) $3x + 8 > 3(x + 6)$



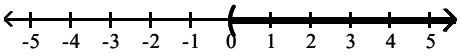
A) $(-\infty, 0)$



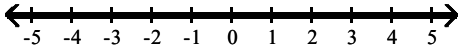
B) $\varnothing$



C) $(0, \infty)$

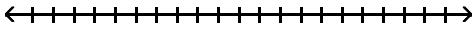


D) $(-\infty, \infty)$

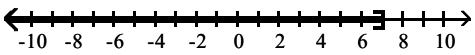


Answer: B

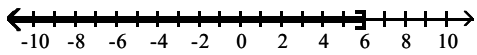
339) $6 - 2(2 - x) \leq 14$



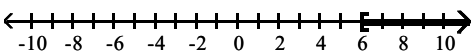
A) $(-\infty, 7]$



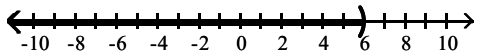
B) $(-\infty, 6]$



C) $[6, \infty)$



D) $(-\infty, 6)$



Answer: B

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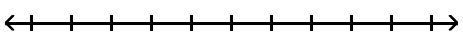
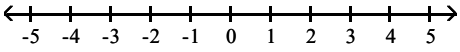
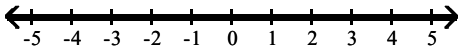
340) $-4(-2 - x) < 6x + 19 - 11 - 2x$



A) $\varnothing$

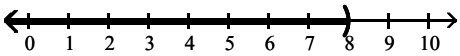
B) $(-\infty, \infty)$

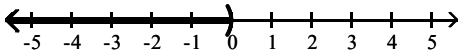




C) $(-\infty, 8)$

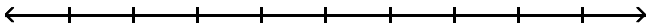
D) $(-\infty, 0)$



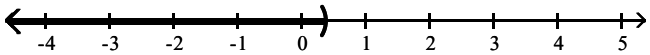


Answer: A

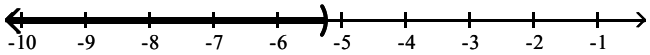
341) $-3(2x + 3) \geq 2[4x - 3(x + 2)]$



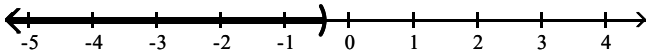
A) $\left(-\infty, \frac{3}{8}\right]$



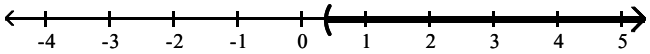
B) $\left(-\infty, -\frac{21}{4}\right]$



C) $\left(-\infty, -\frac{3}{8}\right]$



D) $\left[\frac{3}{8}, \infty\right)$



Answer: A

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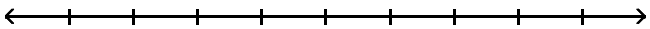
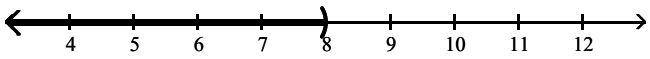
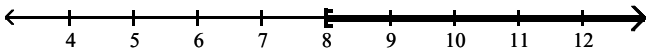
342) $\frac{6x - 4}{4} < 11$



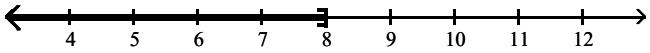
A) $(-\infty, 8)$



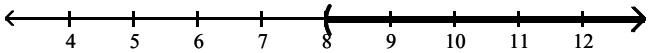
B) $[8, \infty)$



C) $(-\infty, 8]$

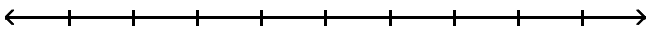


D) $(8, \infty)$

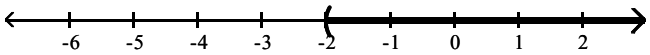


Answer: A

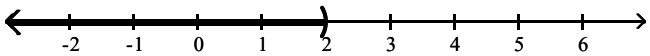
343) $\frac{3}{4} - \frac{7}{8}x < -1$



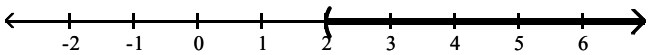
A) $(-2, \infty)$



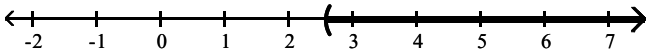
B) $(-\infty, 2)$



C) $(2, \infty)$



D) $\left(\frac{18}{7}, \infty\right)$



Answer: C

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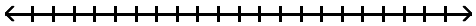
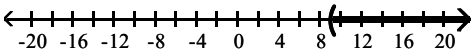
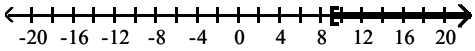
344) $\frac{x}{3} \geq \frac{x}{9} + 2$



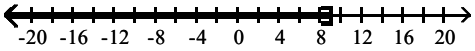
A) $(9, \infty)$



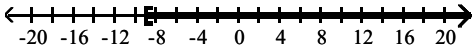
B) $[9, \infty)$



C) $(-\infty, 9]$

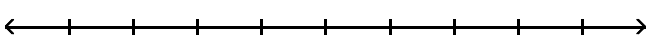


D) $[-9, \infty)$

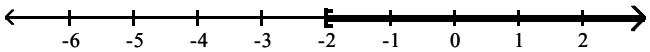


Answer: B

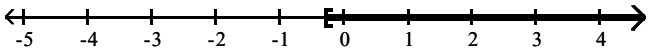
345) $\frac{x}{8} \leq \frac{x}{2} - \frac{2x - 1}{4}$



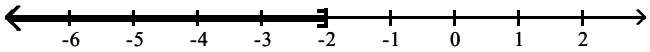
A) $[-2, \infty)$



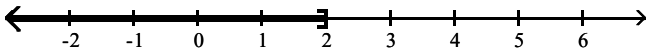
B) $\left[-\frac{2}{7}, \infty\right)$



C) $(-\infty, -2]$



D) $(-\infty, 2]$



Answer: D

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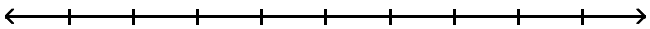
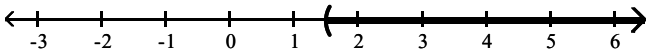
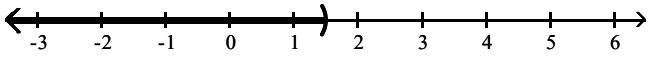
346) $\frac{2}{3}x > \frac{1}{4}(2x - 1)$



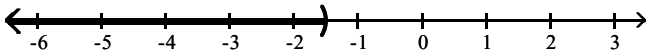
A) $\left(\frac{3}{2}, \infty\right)$



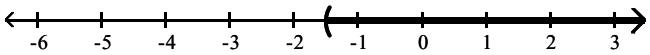
B) $\left(-\infty, \frac{3}{2}\right)$



C) $\left(-\infty, -\frac{3}{2}\right)$

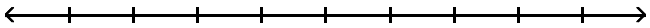


D) $\left(-\frac{3}{2}, \infty\right)$

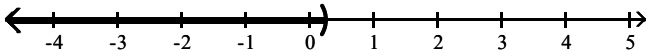


Answer: D

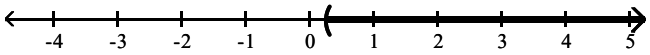
347) $\frac{1}{3}(x + 1) > \frac{1}{9}(7x + 2)$



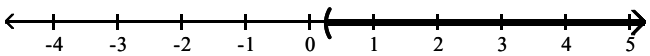
A) $\left(-\infty, \frac{1}{4}\right)$



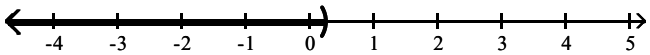
B) $\left(\frac{1}{4}, \infty\right)$



C) $\left(\frac{1}{4}, \infty\right)$



D) $\left(-\infty, \frac{1}{4}\right)$



Answer: D

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Write the given statement using inequality symbols. Let x represent the unknown quantity.

348) The cost of shoes must be less than $96.

A) $x < 96$ B) $x > 96$ C) $x \leq 96$ D) $x \geq 96$

Answer: A

349) The speed of the bike is more than 12 mph.

A) $x < 12$ B) $x > 12$ C) $x \leq 12$ D) $x \geq 12$

Answer: B

350) The number of people the school can hold is at most 129.

A) $x \leq 129$ B) $x > 129$ C) $x \geq 129$ D) $x < 129$

Answer: A

351) The rocket must reach a speed of at least 937 mph.

A) $x \geq 937$ B) $x \leq 937$ C) $x < 937$ D) $x > 937$

Answer: A

352) The price of admission was between $60 and $89.

A) $60 < x < 89$ B) $89 < x < 60$ C) $x < 89$ D) $x > 60$

Answer: A

Solve the problem.

353) Claire has received scores of 85, 88, 87, and 85 on her algebra tests. What is the minimum score she must receive on the fifth test to have an overall test score average of at least 88? (Hint: The average of a list of numbers is their sum divided by the number of numbers in the list.)

A) 94 B) 93 C) 96 D) 95

Answer: D

354) A student scored 74, 76, and 99 on three algebra tests. What must he score on the fourth test in order to have an average grade of at least 85?

A) 83 B) 29 C) 91 D) 62

Answer: C

355) A certain store has a fax machine available for use by its customers. The store charges $1.85 to send the first page and $0.50 for each subsequent page. Use an inequality to find the maximum number of pages that can be faxed for $4.85

A) at most 3 pages B) at most 10 pages C) at most 43 pages D) at most 7 pages

Answer: D

356) An archer has $71 to spend on a new archery set. A certain set containing a bow and three arrows costs $41. With the purchase of this set, he can purchase additional arrows for $10 per arrow. Use an inequality to find the maximum number of arrows he could obtain, including those with the set, for his $71.

A) at most $\frac{71}{10}$ arrows B) at most $\frac{71}{41}$ arrows C) at most 6 arrows D) at most 3 arrows

Answer: C

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357) When making a long distance call from a certain pay phone, the first three minutes of a call cost $1.65. After that, each additional minute or portion of a minute of that call costs $0.40. Use an inequality to find the maximum number of minutes one can call long distance for $6.85.

A) at most 17 minutes B) at most 13 minutes C) at most 4 minutes D) at most 16 minutes

Answer: D

358) It takes 24 minutes to set up a candy making machine. Once the machine is set up, it produces 20 candies per minute. Use an inequality to find the number of candies that can be produced in 5 hours if the machine has not yet been set up.

A) at most 2400 candies B) at most 6720 candies

C) at most 100 candies D) at most 5520 candies

Answer: D

359) A standard train ticket in a certain city costs $2.00 per ride. People who use the train also have the option of purchasing a frequent rider pass for $18.00 each month. With the pass, a ticket costs only $1.25 per ride. Use an inequality to determine the number of train rides in a month for which purchasing the monthly pass is more economical than purchasing the standard train ticket.

A) 23 or more times B) 26 or more times C) 24 or more times D) 25 or more times

Answer: D

360) During the first five months of the year, Len earned commissions of $2970, $3570, $3850, $2120, and $3960. If Len must have average monthly earnings of at least $3340 in order to qualify for retirement benefits, what must he earn in the sixth month in order to qualify for benefits?

A) at least $3294 B) at least $3340 C) at least $3301 D) at least $3570

Answer: D

361) ABC phone company charges $24 per month plus 6¢ per minute for phone calls. XYZ phone company charges $16 per month plus 8¢ per minute for phone calls. How many minutes of phone calls should be made each month to make XYZ phone company a better deal?

A) More than 40 minutes B) Less than 400 minutes

C) More than 400 minutes D) Less than 40 minutes

Answer: B

362) Using data from 1996–1998, the annual number of cars sold at a certain dealership can be modeled by the formula $y = 4x + 5$, where y is the number of cars, in thousands, sold x years after 1996. According to this formula, when will the number of cars sold exceed 45 thousand?

A) 2004 B) 2006 C) 2008 D) 2010

Answer: B

363) Lauren earns $3 an hour selling encyclopedias door–to–door. She also earns $22 in commission per set of encyclopedias sold. To pay her rent this week, she must earn at least $112, and she only has time to work 8 hours. How many sets of encyclopedias must Lauren sell this week in order to make her rent?

A) She would have to sell at least 3 sets of encyclopedias.

B) She would have to sell at least 5 sets of encyclopedias.

C) She would have to sell at least 6 sets of encyclopedias.

D) She would have to sell at least 4 sets of encyclopedias.

Answer: D

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364) Every Sunday, Jarod buys a loaf of fresh bread for his family from the corner bakery for $4.00. The local department store has a sale on breadmakers for $101. If the bread–making supplies cost $0.93 per week, for how many weeks would Jarod have to bake a loaf of bread at home before the breadmaker becomes more cost effective?

A) at least 35 weeks B) at least 33 weeks C) at least 32 weeks D) at least 34 weeks

Answer: B

Solve the equation. Check your solution.

365) $x - 16 = -2$

A) {18} B) {–14} C) {–18} D) {14}

Answer: D

366) $-\frac{6}{7}y = \frac{5}{8}$

A) $\left\{-\frac{48}{35}\right\}$ B) $\left\{\frac{35}{48}\right\}$ C) $\left\{-\frac{35}{48}\right\}$ D) $\left\{-\frac{35}{8}\right\}$

Answer: C

367) $6(5x + 3) = 6x$

A) $\left\{\frac{3}{4}\right\}$ B) $\left\{\frac{4}{3}\right\}$ C) $\left\{-\frac{3}{4}\right\}$ D) {3}

Answer: C

368) $5(2x - 3) = 9(x + 4)$

A) {21} B) {26} C) {–21} D) {51}

Answer: D

369) $\frac{3}{2} - \frac{1}{3}x = \frac{19}{6}$

A) $\left\{-\frac{10}{3}\right\}$ B) {– 5} C) {5} D) $\left\{\frac{10}{3}\right\}$

Answer: B

370) $2y + 1.5 = -16.3$

A) {–1.6} B) {–10.8} C) {–1.8} D) {–8.9}

Answer: D

371) $3x - 7(3 + x) = -4(x + 7)$

A) {–28} B) ∅ C) {–21} D) all real numbers

Answer: B

372) $15(8x - 7) = 5x - 3$

A) $\left\{\frac{108}{115}\right\}$ B) $\left\{-\frac{102}{115}\right\}$ C) $\left\{\frac{102}{115}\right\}$ D) $\left\{\frac{102}{125}\right\}$

Answer: C

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Provide an appropriate response.

373) Volume of a rectangular solid: $V = lwh$

(a) Solve for w.

(b) Find w when $V = 997.35\ ft^3$, $l = 10.9$ ft, and $h = 18.3$ ft.

A) (a) $w = \frac{V}{lh}$ (b) $w = 199.47$ ft

B) (a) $w = \frac{lh}{V}$ (b) $w = 5$ ft

C) (a) $w = \frac{lh}{V}$ (b) $w = 199.47$ ft

D) (a) $w = \frac{V}{lh}$ (b) $w = 5$ ft

Answer: D

374) Equation of a line: $5x + 3y = 30$

(a) Solve for y.

(b) Find y when $x = 4$.

A) (a) $y = -\frac{5}{3}x + 30$ (b) $y = \frac{70}{3}$

B) (a) $y = \frac{5}{3}x + 10$ (b) $y = \frac{50}{3}$

C) (a) $y = -\frac{5}{3}x + 10$ (b) $y = 10$

D) (a) $y = -\frac{5}{3}x + 10$ (b) $y = \frac{10}{3}$

Answer: D

375) Translate the following statement into an equation: 3 times the sum of a number and 10 is equal to 7 less than the product of 11 and the number. DO NOT SOLVE.

A) $3(x + 10) = 11(x - 7)$

B) $3(x + 10) = 11x - 7$

C) $3x + 10 = 11(x - 7)$

D) $3x + 10 = 11x - 7$

Answer: B

376) 26.6 is 38% of a number. Find the number.

A) 1010.8 B) 0.7 C) 10.108 D) 70

Answer: D

Solve the problem.

377) The sum of three consecutive integers is 528. Find the integers.

A) 174, 176, 178 B) 176, 177, 178 C) 174, 175, 176 D) 175, 176, 177

Answer: D

378) A rectangular carpet has a perimeter of 258 inches. The length of the carpet is 111 inches more than the width. What are the dimensions of the carpet?

A) 124.5 inches by 129 inches

B) 69 inches by 78 inches

C) 120 inches by 129 inches

D) 120 inches by 9 inches

Answer: D

379) If two planes leave an airport at the same time with one flying west at 740 miles per hour and the other flying east at 57 0 miles per hour, how long will it take them to be 3930 miles apart?

A) 4 hours B) 2.5 hours C) 3 hours D) 2 hours

Answer: C

380) A 6–ft. board is cut into 2 pieces so that one piece is 2 feet longer than 3 times the shorter piece. If the shorter piece is x feet long, find the lengths of both pieces.

A) shorter piece: 1 feet.; longer piece: 5 feet

B) shorter piece: 3 feet; longer piece: 18 feet

C) shorter piece: 6 feet; longer piece: 20 feet

D) shorter piece: 16 feet; longer piece: 18 feet

Answer: A

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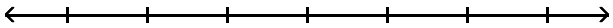
381) After a 14% price reduction, a boat sold for $21,500. What was the boat's price before the reduction? (Round to the nearest cent, if necessary.)

A) $153,571.43 B) $3010.00 C) $24,510.00 D) $25,000

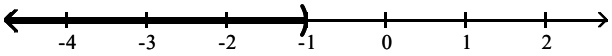
Answer: D

Solve the inequality and express the solution in set–builder notation and interval notation. Graph the solution set on a real number line.

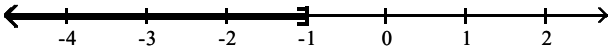
382) $-4(5x - 8) \geq -24x + 28$



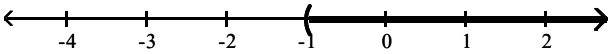
A) $\{x \mid x < -1\}; (-\infty, -1)$



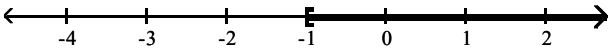
B) $\{x \mid x \leq -1\}; (-\infty, -1]$



C) $\{x \mid x > -1\}; (-1, \infty)$

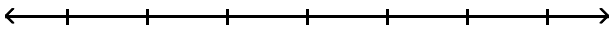


D) $\{x \mid x \geq -1\}; [-1, \infty)$

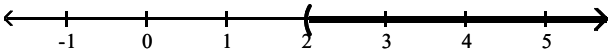


Answer: D

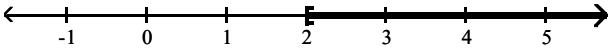
383) $36x + 12 > 6(5x + 4)$



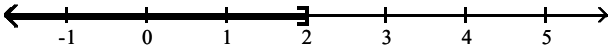
A) $\{x \mid x > 2\}; (2, \infty)$



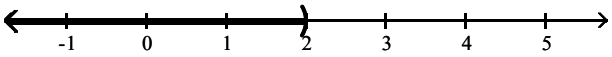
B) $\{x \mid x \geq 2\}; [2, \infty)$



C) $\{x \mid x \leq 2\}; (-\infty, 2]$



D) $\{x \mid x < 2\}; (-\infty, 2)$



Answer: A

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Solve the problem.

384) When making a long distance call from a certain pay phone, the first three minutes of a call cost $2.45. After that, each additional minute or portion of a minute of that call costs $0.50. Find the maximum number of minutes one can call long distance for $11.95.

A) at most 5 minutes B) at most 30 minutes C) at most 22 minutes D) at most 19 minutes

Answer: C

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