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

1)

Answer: No Correct Answer Was Provided.

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

2) $8x - 10 = 15;\ x = 3$

A) No
B) Yes

Answer: A

3) $6m + 3 = 17;\ m = 2$

A) Yes
B) No

Answer: B

4) $6k - 1 = 1;\ k = \frac{1}{3}$

A) Yes
B) No

Answer: A

5) $2 - (x + 2) = 3(3x - 4);\ x = \frac{6}{5}$

A) No
B) Yes

Answer: B

6) $7n + 1.7 = 8n + 4.7;\ n = -3$

A) No
B) Yes

Answer: B

7) $4m - 2 = -3m - 14;\ m = -2$

A) Yes
B) No

Answer: B

8) $3(x - 1) - x = 4x + 5;\ x = -4$

A) Yes
B) No

Answer: A

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

9) $-15 = b + 10$

A) {−25}
B) {5}
C) {−5}
D) {25}

Answer: A

10) $-20 = -19 + x$

A) {–1}
B) {–39}
C) {380}
D) {1}

Answer: A

11) $b + 10 = 7$

A) {17}
B) {3}
C) {–17}
D) {–3 }

Answer: D

12) $t - 7 = 17$

A) {10}
B) {–24}
C) {24}
D) {–10}

Answer: C

13) $x - 17 = -14$

A) {–31}
B) {31}
C) {–3}
D) {3}

Answer: D

14) $x + \frac{1}{9} = \frac{8}{9}$

A) $\left\{\frac{2}{3}\right\}$
B) $\left\{\frac{7}{8}\right\}$
C) $\left\{\frac{7}{9}\right\}$
D) $\{1\}$

Answer: C

15) $x - \frac{1}{11} = \frac{10}{11}$

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

Answer: A

16) $-\frac{14}{23} = x - \frac{19}{23}$

A) $\left\{-\frac{5}{23}\right\}$

B) $\left\{-\frac{33}{23}\right\}$

C) $\left\{\frac{33}{23}\right\}$

D) $\left\{\frac{5}{23}\right\}$

Answer: D

17) $-\frac{7}{12} = -\frac{2}{3} + x$

A) $\left\{\frac{5}{4}\right\}$

B) $\left\{\frac{1}{12}\right\}$

C) $\left\{-\frac{1}{12}\right\}$

D) $\left\{-\frac{5}{4}\right\}$

Answer: B

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

A) $\left\{-\frac{1}{2}\right\}$

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

C) $\left\{-\frac{5}{6}\right\}$

D) $\left\{-\frac{1}{3}\right\}$

Answer: C

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

A) $\left\{\frac{5}{4}\right\}$

B) $\{23\}$

C) $\left\{\frac{25}{4}\right\}$

D) $\left\{\frac{23}{4}\right\}$

Answer: D

20) $x + 7.9 = 20.3$

A) {28.2}
B) {27.7}
C) {11.9}
D) {12.4}

Answer: D

21) $y - 13.7 = -0.2$

A) {13}
B) {13.9}
C) {13.4}
D) {13.5}

Answer: D

22) $x - 1.8 = 17$

A) {18.8}
B) {14.7}
C) {18.3}
D) {15.2}

Answer: A

Solve the problem.

23) Bob is saving to buy a car. The total amount that he needs is $15,000. The amount that he has saved so far is $ 7000. Find the amount Bob needs by solving the equation $7000 + x = 15{,}000$, where x represents the remaining amount he needs.

A) Bob needs $8002 more.
B) Bob needs $7000 more.
C) Bob needs $8000 more.
D) Bob needs $15,000 more.

Answer: C

24) A weatherman reports that since 6:00 am this morning the temperature has dropped by 12° F to the current temperature of 39° F. Find the temperature, x, at 6:00 am by solving the equation $x - 12 = 39$.

A) The temperature at 6:00am was 51° F.
B) The temperature at 6:00am was –51° F.
C) The temperature at 6:00am was 27° F.
D) The temperature at 6:00am was –12° F.

Answer: A

Solve the equation using the Multiplication Property of Equality.

25) $2x = 5$

A) $\left\{\frac{5}{2}\right\}$
B) $\left\{-\frac{2}{5}\right\}$
C) $\left\{-\frac{5}{2}\right\}$
D) $\left\{\frac{2}{5}\right\}$

Answer: A

26) $5a = -40$

A) {–8}
B) {45}
C) {1}
D) {–45}

Answer: A

27) $-5x = -35$

A) {30}
B) {2}
C) {7}
D) {–30}

Answer: C

28) $\frac{n}{3} = 5$

A) {15}
B) {8}
C) {7}
D) {1}

Answer: A

29) $\frac{n}{5} = 2$

A) {0}
B) {6}
C) {10}
D) {7}

Answer: C

30) $\frac{x}{-3} = 5$

A) {–2}
B) {–15}
C) {2}
D) {1}

Answer: B

31) $-\frac{1}{6}x = -6$

A) {36}
B) {1}
C) {–13}
D) {–12}

Answer: A

32) $8 = -\frac{2}{3}x$

A) {– 12}
B) $\left\{-\frac{26}{3}\right\}$
C) $\left\{-\frac{16}{3}\right\}$
D) $\left\{-\frac{22}{3}\right\}$

Answer: A

33) $-\frac{1}{7}a = 0$

A) {0}
B) {7}
C) {–7}
D) {1}

Answer: A

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

A) $\{16\}$
B) $\left\{\frac{1}{16}\right\}$
C) $\{1\}$
D) $\left\{-\frac{15}{4}\right\}$

Answer: B

35) $\frac{4}{9} = -\frac{x}{6}$

A) $\left\{\frac{8}{3}\right\}$
B) $\left\{-\frac{8}{3}\right\}$
C) $\left\{-\frac{3}{8}\right\}$
D) $\left\{\frac{3}{8}\right\}$

Answer: B

36) $-\frac{3}{5}p = -\frac{7}{9}$

A) $\left\{\frac{35}{27}\right\}$

B) $\left\{\frac{27}{35}\right\}$

C) $\left\{-\frac{35}{9}\right\}$

D) $\left\{-\frac{35}{27}\right\}$

Answer: A

37) $-\frac{9}{14} = -\frac{3}{14}k$

A) {11}
B) {3}
C) {–5}
D) {10}

Answer: B

38) –52.5 = –7.5c

A) {2}
B) {45}
C) {7}
D) {–45}

Answer: C

Solve the problem.

39) The Smith family is planning a 444–mile trip. They plan to travel at an average speed of 37 miles per hour. To determine the number of hours the trip will take, solve the equation 444 = 37t.

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

Answer: B

40) Suppose you borrowed $6000 from a relative. Last month, your relative charged you $40 interest. The solution to the equation $40 = \frac{6000}{12} \cdot r$ represents the annual interest rate on the loan. Find the interest rate.

A) 0.8%
B) 8%
C) 20,000%
D) 80%

Answer: B

Solve the equation. Check your solution.

41) $8r + 9 = 41$

A) {24}
B) {28}
C) {4}
D) {3}

Answer: C

42) $-8n + 2 = 12$

A) $\left\{\frac{5}{4}\right\}$
B) $\left\{-\frac{4}{5}\right\}$
C) $\left\{\frac{4}{5}\right\}$
D) $\left\{-\frac{5}{4}\right\}$

Answer: D

43) $8 - 4t = 13$

A) $\left\{-\frac{4}{5}\right\}$
B) $\left\{-\frac{5}{4}\right\}$
C) $\left\{\frac{4}{5}\right\}$
D) $\left\{\frac{5}{4}\right\}$

Answer: B

44) $19 = 7x - 2$

A) {4}
B) {3}
C) {14}
D) {18}

Answer: B

45) $47 = 8n - 9$

A) {52}
B) {14}
C) {48}
D) {7}

Answer: D

46) $4n - 5 = 27$

A) {28}
B) {32}
C) {8}
D) {11}

Answer: C

47) $37 = -5x + 2$

A) {44}
B) {40}
C) {9}
D) {–7}

Answer: D

48) $\frac{1}{8}x + 6 = 8$

A) $\{-16\}$
B) $\left\{-\frac{1}{16}\right\}$
C) $\left\{\frac{1}{16}\right\}$
D) $\{16\}$

Answer: D

49) $\frac{5}{8} = \frac{1}{16} - 3x$

A) $\left\{-\frac{3}{16}\right\}$
B) $\left\{\frac{3}{16}\right\}$
C) $\left\{\frac{16}{3}\right\}$
D) $\left\{-\frac{16}{3}\right\}$

Answer: A

50) $\frac{1}{4}f - 4 = 1$

A) {20}
B) {12}
C) {–20}
D) {–12}

Answer: A

51) $\frac{1}{5}a - \frac{1}{5} = -2$

A) {–11}
B) {–9}
C) {11}
D) {9}

Answer: B

52) $6x - 5x - 8 = -8$

A) {0}
B) {8}
C) –{16}
D) {–8}

Answer: A

53) $-3x - 14 + 4x = 9$

A) {–23}
B) {–5}
C) {23}
D) {5}

Answer: C

54) $9x - 7 + 2x - 10 = 5$

A) $\left\{\frac{8}{11}\right\}$
B) $\left\{\frac{22}{7}\right\}$
C) $\{-2\}$
D) $\{2\}$

Answer: D

55) $8x - (5x - 1) = 2$

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

Answer: C

56) $5(3x - 1) = 20$

A) $\{1\}$

B) $\left\{\frac{7}{5}\right\}$

C) $\left\{\frac{5}{3}\right\}$

D) $\left\{\frac{19}{15}\right\}$

Answer: C

57) $\frac{2}{3}(8x - \frac{1}{6}) - \frac{3}{4} = \frac{1}{4}$

A) $\left\{\frac{7}{32}\right\}$

B) $\left\{\frac{1}{24}\right\}$

C) $\left\{\frac{9}{64}\right\}$

D) $\left\{\frac{5}{24}\right\}$

Answer: D

58) $-5(1 + x) = -15$

A) {2}

B) {4}

C) {–14}

D) {–16}

Answer: A

59) $-3(2x - 9) = 2$

A) $\left\{-\frac{25}{6}\right\}$

B) $\left\{\frac{25}{6}\right\}$

C) $\left\{-\frac{29}{6}\right\}$

D) $\left\{\frac{29}{6}\right\}$

Answer: B

60) $10y = 5y + 3 + 4y$

A) {30}

B) {–3}

C) {3}

D) {–30}

Answer: C

61) $-6b + 4 + 4b = -3b + 9$

A) {9}
B) {–9}
C) {–4}
D) {5}

Answer: D

62) $-2x + 6 = 5 - 6x$

A) $\left\{-\frac{1}{4}\right\}$
B) $\{4\}$
C) $\{-4\}$
D) $\left\{-\frac{8}{11}\right\}$

Answer: A

63) $-7x - 2 = 7 - 5x$

A) $\left\{-\frac{2}{9}\right\}$
B) $\left\{\frac{2}{9}\right\}$
C) $\left\{-\frac{9}{2}\right\}$
D) $\left\{-\frac{12}{5}\right\}$

Answer: C

64) $6x = 5(3x + 7)$

A) $\left\{\frac{9}{35}\right\}$
B) $\left\{\frac{35}{6}\right\}$
C) $\left\{-\frac{35}{9}\right\}$
D) $\left\{\frac{35}{9}\right\}$

Answer: C

65) $4(y + 9) = 5y + 36$

A) {36}
B) {72}
C) {–36}
D) {0}

Answer: D

66) $3(4x - 3) = 9x - 5$

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

B) $\left\{\frac{4}{21}\right\}$

C) $\left\{\frac{14}{3}\right\}$

D) $\left\{\frac{4}{3}\right\}$

Answer: D

67) $8x + 4 = 9(x + 8)$

A) {–76}

B) {68}

C) {76}

D) {–68}

Answer: D

68) $\frac{1}{3}(3n + 3) = 8 + 7n$

A) $\left\{\frac{7}{8}\right\}$

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

C) $\left\{-\frac{7}{6}\right\}$

D) $\left\{\frac{9}{8}\right\}$

Answer: C

69) $4(4x - 1) - 35 = 11x + 1$

A) {8}

B) {200}

C) {40}

D) {–8}

Answer: A

70) $8x + 3(2x - 7) = -5 - 2x$

A) $\left\{-\frac{13}{6}\right\}$

B) {1}

C) $\left\{-\frac{13}{8}\right\}$

D) {– 1}

Answer: B

71) $14(x + 1) = -2(x - 7)$

A) {0}
B) {1}
C) {14}
D) {12}

Answer: A

72) $4(x + 6) = 5(x - 4)$

A) {0}
B) {44}
C) {4}
D) {1}

Answer: B

73) $2(2z - 4) = 3(z + 3)$

A) {1}
B) {17}
C) {–1}
D) {3}

Answer: B

74) $\frac{1}{4}(x + 6) = \frac{1}{8}(x + 8)$

A) {–12}
B) {4}
C) {–4}
D) {3}

Answer: C

75) $-\frac{1}{9}(x + 27) - \frac{1}{4}(x - 4) = x + 7$

A) $\left\{-\frac{108}{49}\right\}$
B) $\left\{-\frac{180}{49}\right\}$
C) $\left\{-\frac{396}{49}\right\}$
D) $\left\{-\frac{324}{49}\right\}$

Answer: D

76) $\frac{1}{9}(x - 27) + \frac{1}{6}(x + 6) = x + 7$

A) $\left\{-\frac{198}{13}\right\}$

B) $\left\{-\frac{162}{13}\right\}$

C) $\left\{-\frac{90}{13}\right\}$

D) $\left\{-\frac{54}{13}\right\}$

Answer: B

77) $\frac{5}{8}x - \left[x + \frac{1}{8}\right] = \frac{1}{64}(x - 1)$

A) $\left\{-\frac{7}{25}\right\}$

B) $\left\{\frac{9}{25}\right\}$

C) $\left\{-\frac{7}{23}\right\}$

D) $\left\{\frac{7}{103}\right\}$

Answer: A

78) $6(x + 5) = 7[x - (3 - x)]$

A) $\left\{\frac{51}{8}\right\}$

B) $\left\{\frac{15}{4}\right\}$

C) $\left\{-\frac{51}{8}\right\}$

D) $\left\{-\frac{15}{4}\right\}$

Answer: A

79) $-4(2x + 5) - 5 = -3(x + 3) + 4x$

A) $\left\{-\frac{1}{3}\right\}$

B) $\left\{-\frac{16}{9}\right\}$

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

D) $\{1\}$

Answer: B

Solve the problem.

80) 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 42 by solving the equation $42 = 2(x + 12)$, where x represents the size in the United States.

A) 96
B) 9
C) 4.5
D) 18

Answer: B

81) Find the Celsius temperature (to the nearest degree) when Fahrenheit temperature is 77° by solving the equation $77 = \frac{9}{5}C + 32$, where F is the Fahrenheit temperature (in degrees) and C is the Celsius temperature.

A) 171°
B) 145°
C) 39°
D) 25°

Answer: D

82) A rectangular Persian carpet has a perimeter of 204 inches. The length of the carpet is 20 inches more than the width. Solve the equation $204 = 2w + 2(w + 20)$ to find the width, w, of the carpet. Then find the length, $w + 20$, of the carpet.

A) Length is 112 in., width is 92 in.
B) Length is 61 in., width is 41 in.
C) Length is 102 in., width is 82 in.
D) Length is 81 in., width is 61 in.

Answer: B

83) In one state, speeding fines are determined by the formula $F = 6(x - 70) + 75$, 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 $147, how fast was the person driving.

A) 92 miles per hour
B) 82 miles per hour
C) 84 miles per hour
D) 80 miles per hour

Answer: B

84) 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 $8.24 for an item priced at $8, what was the tax rate?

A) 3%
B) 5%
C) 4%
D) 1.5%

Answer: A

Solve the equation. Check your solution.

85) $\frac{1}{2}x - \frac{1}{2} = -2$

A) {–5}
B) {3}
C) {–3}
D) {5}

Answer: C

86) $\frac{7x}{2} + 4 = \frac{1}{5}$

A) $\left\{\frac{1}{35}\right\}$
B) $\left\{-\frac{38}{35}\right\}$
C) $\left\{\frac{2}{7}\right\}$
D) $\left\{-\frac{39}{35}\right\}$

Answer: B

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

A) {75}
B) {150}
C) {–75}
D) {–150}

Answer: A

88) $x - \frac{6}{7}x - 4 = 1$

A) {–35}
B) {–21}
C) {35}
D) {21}

Answer: C

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

A) {30}
B) {60}
C) {–60}
D) {–30}

Answer: A

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

A) {–32}
B) {–28}
C) {28}
D) {32}

Answer: A

91) $\frac{b}{9} - 8 = -6$

A) {–18}
B) {–20}
C) {20}
D) {18}

Answer: D

92) $\frac{a}{5} - \frac{1}{5} = -6$

A) {31}
B) {–29}
C) {–31}
D) {29}

Answer: B

93) $\frac{15}{8}x + \frac{9}{4} = \frac{7}{4}x$

A) {32}
B) {18}
C) {–32}
D) {–18}

Answer: D

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

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

Answer: D

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

A) $\left\{\frac{11}{6}\right\}$

B) $\left\{-\frac{11}{18}\right\}$

C) $\left\{\frac{11}{18}\right\}$

D) $\left\{\frac{7}{6}\right\}$

Answer: C

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

A) $\{16\}$

B) $\{-1\}$

C) $\{-16\}$

D) $\{1\}$

Answer: A

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

A) {4}

B) {7}

C) $\left\{\frac{28}{5}\right\}$

D) {–4}

Answer: A

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

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: A

99) $\frac{-5x+3}{2}+4=-\frac{7x}{5}$

A) $\left\{-\frac{25}{11}\right\}$

B) $\left\{\frac{55}{39}\right\}$

C) $\{5\}$

D) $\left\{\frac{25}{11}\right\}$

Answer: C

100) $\frac{r+6}{5}=\frac{r+8}{7}$

A) {2}

B) {–2}

C) {1}

D) {–1}

Answer: D

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

A) $\left\{\frac{10}{11}\right\}$

B) $\left\{-\frac{10}{11}\right\}$

C) $\{2\}$

D) $\{-2\}$

Answer: C

102) $\frac{3}{8}(2x-8)=-\frac{3}{4}x$

A) $\left\{\frac{24}{0}\right\}$

B) $\{0\}$

C) $\{2\}$

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

Answer: C

103) $\frac{5x - 10}{2} + \frac{x}{12} = \frac{x}{6} - 10$

A) $\left\{-\frac{60}{31}\right\}$

B) $\left\{-\frac{60}{29}\right\}$

C) $\left\{\frac{180}{29}\right\}$

D) $\left\{-\frac{15}{7}\right\}$

Answer: B

104) −14.8 = −3.7x

A) {11.1}

B) {4}

C) {−11.1}

D) {2}

Answer: B

105) 4.0x = 1280

A) {320}

B) {96}

C) {32}

D) {3.2}

Answer: A

106) −8.5x = 34

A) {−40}

B) {4}

C) {−4}

D) {−0.4}

Answer: C

107) x + 8.1x = 109.2

A) {20.1}

B) {1.2}

C) {13}

D) {12}

Answer: D

108) 1.2x − 3.4 = 0.7x − 1.6

A) {3.6}

B) {3.7}

C) {3.96}

D) {−0.278}

Answer: A

109) $0.80x - 0.30(50 + x) = 0.50(50)$

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

Answer: C

110) $0.05(20) + 0.30x = 0.20(20 + x)$

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

Answer: C

111) $-0.05y + 0.12(7000 - y) = 0.08y$

A) {10,080}
B) {3360}
C) {210}
D) {2100}

Answer: B

112) $6 + 0.4(5 - y) = 1.1y - 4(y - 0.5)$

A) $\left\{-\frac{60}{19}\right\}$
B) $\left\{-\frac{12}{5}\right\}$
C) $\left\{-\frac{85}{19}\right\}$
D) $\left\{-\frac{24}{5}\right\}$

Answer: B

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

113) $-8x + 7 + 6x = -2x + 12$

A) all real numbers; identity
B) {5}; conditional equation
C) ∅ or { }; contradiction
D) {–7}; conditional equation

Answer: C

114) $5x + 3 - 5x - 5 = 3x - 3x - 5$

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

Answer: B

115) $6(x + 7) = (6x + 42)$

A) ∅ or { }; contradiction
B) {0}; conditional equation
C) {84}; conditional equation
D) all real numbers; identity

Answer: D

116) $-3(x - 7) - 9 = 2x - 5(x - 8)$

A) {31}; conditional equation
B) all real numbers; identity
C) {–49}; conditional equation
D) ∅ or { }; contradiction

Answer: D

117) $17x + 2(x + 1) = 19(x + 1) - 17$

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

Answer: A

118) $6.6m - 9.4 - 5.9m = -0.5 + 0.7m - 8.9$

A) {0.6}; conditional equation
B) ∅ or { }; contradiction
C) all real numbers; identity
D) {0}; conditional equation

Answer: C

119) $0.08(8x - 7) = 0.64(x + 7) - 5.04$

A) {–0.56}; conditional equation
B) {–5.04}; conditional equation
C) all real numbers; identity
D) ∅ or { }; contradiction

Answer: C

120) $\frac{6x + 4}{6} = \frac{4x - 3}{4}$

A) {16}; conditional equation
B) {–18}; conditional equation
C) ∅ or { }; contradiction
D) all real numbers; identity

Answer: C

121) $\frac{x}{4} + \frac{5}{7} = \frac{7x + 20}{28}$

A) $\left\{-\frac{20}{7}\right\}$; conditional equation
B) all real numbers; identity
C) ∅ or { }; contradiction
D) $\left\{\frac{20}{7}\right\}$; conditional equation

Answer: B

Solve the problem.

122) Center City East Parking Garage has a capacity of 259 cars more than Center City West Parking Garage. If the combined capacity for the two garages is 1237 cars, find the capacity for each garage by solving the equation x + (x + 259) = 1237, where x represents the capacity for Center City West Parking Garage.

A) Center City East: 758 cars
Center City West: 479 cars
B) Center City East: 479 cars
Center City West: 758 cars
C) Center City East: 489 cars
Center City West: 748 cars
D) Center City East: 748 cars
Center City West: 489 cars

Answer: D

123) During an intramural basketball game, Team A scored 17 fewer points than Team B. Together, both teams scored a total of 143 points. Determine how many points Team A scored during the game by solving the equation x + (x – 17) = 143 where x represents the number of points Team B scored.

A) 63 points
B) 71 points
C) 80 points
D) 64 points

Answer: A

124) 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 = 6 marbles; 2nd bag = 14 marbles; 3rd bag = 10 marbles
B) 1st bag = 6 marbles; 2nd bag = 18 marbles; 3rd bag = 12 marbles
C) 1st bag = 5 marbles; 2nd bag = 10 marbles; 3rd bag = 15 marbles
D) 1st bag = 5 marbles; 2nd bag = 15 marbles; 3rd bag = 10 marbles

Answer: D

125) There are 16 more sophomores than juniors in an 8 AM algebra class. If there are 78 students in this class, find the number of sophomores and the number of juniors in the class by solving the equation x + (x + 16) = 78, where x represents the number of juniors in the class.

A) 78 sophomores; 62 juniors
B) 47 sophomores; 31 juniors
C) 31 sophomores; 47 juniors
D) 94 sophomores; 62 juniors

Answer: B

126) An isosceles triangle contains two angles of the same measure. If the measure of the third angle is 39° less than the measure of either of the other two angles, find the measure of one of the identical angles by solving the equation $2x + (x - 39) = 180$, where x represents the measure of one of the identical angles.

A) 53°
B) 73°
C) 34°
D) 109.5°

Answer: B

127) An auto repair shop charged a customer $304 to repair a car. The bill listed $84 for parts and the remainder for labor. If the cost of labor is $55 per hour, determine how many hours, x, of labor it took to repair the car by solving the equation $304 = 55x + 84$.

A) 3 hr
B) 5 hr
C) 4.5 hr
D) 4 hr

Answer: D

128) Rooms in Dormitory A each have 130 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 $2x = 130$.

A) 128 sq. feet
B) 65 sq. feet
C) 132 sq. feet
D) 260 sq. feet

Answer: B

129) A 12–ft. board is cut into 2 pieces so that one piece is 8 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 $x + (3x + 8) = 12$.

A) shorter piece: 24 ft; longer piece: 44 ft
B) shorter piece: 1 ft; longer piece: 11 ft
C) shorter piece: 6 ft; longer piece: 36 ft
D) shorter piece: 28 ft; longer piece: 36 ft

Answer: B

130) A rectangular carpet has a perimeter of 208 inches. The length of the carpet is 60 inches more than the width. Determine the dimensions of the carpet by solving the equation $2w + 2(w + 60) = 208$, where w represents the carpet width.

A) 82 by 104 in.
B) 82 by 22 in.
C) 63 by 85 in.
D) 93 by 104 in.

Answer: B

131) 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, 38 cm
B) 27 cm, 31 cm, 34 cm
C) 18 cm, 22 cm, 29 cm
D) 18 cm, 22 cm, 25 cm

Answer: D

132) The total cost, including 6.1% sales tax, for the purchase of a cell phone was $183.55. Find the price of the cell phone, c, before sales tax, by solving the equation $c + 0.061c = \$183.55$.

A) $173
B) $17.3
C) $183.55
D) $1730

Answer: A

133) Juan recently received a 4.9% pay increase. His hourly wage is now $11.54. Use the equation $w + 0.049w = 11.54$ to find his hourly wage before the pay increase.

A) $1.10
B) $11
C) $110
D) $11.54

Answer: B

134) Anita recently received a 7.2% pay cut. Her hourly wage is now $15.78. Use the equation $w - 0.072w = 15.78$ to find her hourly wage before the pay cut.

A) $170
B) $15.78
C) $17
D) $1.70

Answer: C

135) A pair of jeans you want to purchase has been marked down 25%. The jeans now cost $99.00. To find the price before the markdown, solve the equation $c - 0.25c = 99.00$.

A) $132
B) $157
C) $137
D) $13.20

Answer: A

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.

136) $P = 2L + 2W$; $P = 26$, $W = 5$

A) 8 units
B) 21 units
C) 13 units
D) 10.5 units

Answer: A

137) $V = \frac{1}{3}Bh$; $V = 9$, $h = 3$

A) 3 units
B) 12 units
C) 9 units
D) 27 units

Answer: C

138) I = prt; I = 31.2, p = 130, r = 0.03

A) 0.8 units
B) 121.68 units
C) 8 units
D) 1.2168 units

Answer: C

139) $A = \frac{1}{2}(b + B)h$; A = 66, b = 19, B = 14

A) $49\frac{1}{2}$ units
B) 266 units
C) 4 units
D) $16\frac{1}{2}$ units

Answer: C

140) Use the formula $F = \frac{9}{5}C + 32$ to convert 85° C to degrees Fahrenheit.

A) 185° F
B) 65.4° F
C) 29.8° F
D) 121° F

Answer: A

141) Use the formula $C = \frac{5}{9}(F - 32)$ to convert 149° F to degrees Celsius.

A) 65° C
B) 100.6° C
C) 50.8° C
D) 300.2° C

Answer: A

142) Find the perimeter of a rectangle if the length, L, is 9 meters and the width, W, is 2 meters. Use the formula P = 2L + 2W.

A) 20 m
B) 36 m
C) 11 m
D) 22 m

Answer: D

143) Find (a) the perimeter and (b) the area of a square with side lengths s = 15. Use P = 4s for perimeter and $A = s^2$ for area.

A) (a) 60 units
(b) 225 units^2

B) (a) 30 units
(b) 225 units^2

C) (a) 225 units
(b) 60 units^2

D) (a) 60 units
(b) 30 units^2

Answer: A

144) The formula S = P – 0.2P gives the sale price, S, of a shirt that was marked down 20% from the original price, P. Find the sale price of a shirt that originally cost $44.

A) $46.00
B) $52.80
C) $43.80
D) $35.20

Answer: D

Solve the problem.

145) You are standing at the juice section of your local grocery store trying to decide which is the "better" buy: 20 ounces of Brand X for $6.40 or 16 ounces of Brand Y for $4.80. Which would you choose to get the best deal?

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

Answer: D

146) The average price (in dollars) to rent a studio in a certain city can be approximated by the equation p = 28.9t + 650 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 $1488.10.

A) 2020
B) 2019
C) 2021
D) 2022

Answer: B

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

C = 0.6723D + 5.9408

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 $9.05 billion. Round your answer to the nearest tenth of a billion.

A) $4.6 billion
B) $4.4 billion
C) $12.0 billion
D) $7.5 billion

Answer: A

148) How long would it take to drive 320 kilometers if your average rate of speed was 40 kilometers per hour? Use the formula d = rt.

A) 128 hr
B) 9 hr
C) 8 hr
D) 36 hr

Answer: C

149) A contestant in a 24–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) 0.3 mph
B) 3.4 mph
C) 168 mph
D) 17 mph

Answer: B

150) Nathan invested his $2000 poker winnings in a 2 year Certificate of Deposit at a rate of 0.05. Use the formula I = Prt to find the amount of interest Nathan's investment will earn.

A) $100
B) $200
C) $2,200
D) $2,100

Answer: B

151) Farmer Joe just replaced the fencing for his pig pen. He used exactly 36 feet of fencing for the rectangular shaped pen. If the length of the pen is 14 feet, what is the width of the pen? Use the formula P = 2L + 2W.

A) 4 ft
B) $2\frac{4}{7}$ ft
C) 32 ft
D) 8 ft

Answer: A

152) Jim runs one time around a circular track that has a radius of 9 kilometers, and Chris runs two times around a circular track with a radius of 5 kilometers. Who ran the farther distance? Use the formula $C = 2\pi r$ and 3.14 as an approximation for π.

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

Answer: C

153) 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 20 cubic inches of soup? Use the formula $V = \pi r^2 h$ and 3.14 as an approximation for π.

A) 39 cans of soup
B) 40 cans of soup
C) 13 cans of soup
D) 12 cans of soup

Answer: A

154) 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 3 meters. Use 3.14 for the value of π .

A) 36 m^3

B) 113.04 m^3

C) 37.68 m^3

D) 339.12 m^3

Answer: B

155) 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) 19.72 cm^2

B) 12.56 cm^2

C) 6.28 cm^2

D) 5.14 cm^2

Answer: B

156) 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 392π cubic feet and whose radius is 7 feet.

A) 8 feet

B) 64 feet

C) 56 feet

D) 7 feet

Answer: A

157) Joanie drives a truck for the local trucking company in Seattle and earns $32 per hour. On one particular trip, she leaves Seattle at 8 a.m. and travels 280 miles to the warehouse. At the warehouse, she waits for 5 hours for her truck to be loaded and then returns to Seattle. She estimates that she can travel at an average speed of 70 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) $288

B) $416

C) $128

D) $256

Answer: B

158) 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 6 feet by 10 feet with a 10 foot ceiling. Remember, you cannot purchase a partial container of paint.

A) 0 gal

B) 2 gal

C) 4 gal

D) 3 gal

Answer: B

Solve the formula for the stated variable.

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

A) $r = 2C\pi$

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

C) $r = \frac{C}{2\pi}$

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

Answer: C

160) $A = lw$; solve for w

A) $w = Al$

B) $w = \frac{l}{A}$

C) $w = \frac{A}{l}$

D) $w = A - l$

Answer: C

161) $v = LWH$; solve for L

A) $L = v - WH$

B) $L = \frac{WH}{v}$

C) $L = \frac{v/W}{H}$

D) $L = \frac{v}{WH}$

Answer: D

162) $d = rt$; solve for t

A) $t = d - r$

B) $t = dr$

C) $t = \frac{d}{r}$

D) $t = \frac{r}{d}$

Answer: C

163) $I = Prt$; solve for r

A) $r = P - It$

B) $r = \frac{I}{Pt}$

C) $r = \frac{P - 1}{It}$

D) $r = \frac{P - I}{1 + t}$

Answer: B

164) $A = \frac{1}{2}bh$; solve for b

A) $b = \frac{A}{2h}$

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

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

D) $b = \frac{Ah}{2}$

Answer: C

165) $V = \frac{1}{3}Ah$; solve for h

A) $h = \frac{V}{3A}$

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

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

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

Answer: D

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

A) $b = a + c - P$

B) $b = P - a - c$

C) $b = P + a + c$

D) $b = P + a - c$

Answer: B

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

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

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

C) $L = P - W$

D) $L = P - 2W$

Answer: B

168) $A = P + PRT$; solve for R

A) $R = \frac{A - P}{PT}$

B) $R = \frac{A}{T}$

C) $R = \frac{PT}{A - P}$

D) $R = \frac{P - A}{PT}$

Answer: A

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

A) $C = \frac{F - 32}{9}$

B) $C = \frac{5}{F - 32}$

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

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

Answer: C

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

A) $h = 2\pi(S - r)$

B) $h = S - r$

C) $h = \frac{S - 2\pi r^2}{2\pi r}$

D) $h = \frac{S}{2\pi r} - 1$

Answer: C

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

A) $B = \frac{2A + bh}{h}$

B) $B = \frac{2A - bh}{h}$

C) $B = 2A - bh$

D) $B = \frac{A - bh}{h}$

Answer: B

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

A) $r^2 = \frac{S}{8\pi}$

B) $r^2 = S - 4\pi$

C) $r^2 = \frac{S}{4\pi}$

D) $r^2 = \frac{S}{\pi} - 4$

Answer: C

Solve for y.

173) $8x - 7y = 4$

A) $y = \frac{8x + 4}{7}$

B) $y = 8x - 4$

C) $y = \frac{8x - 4}{7}$

D) $y = \frac{4 - 8x}{7}$

Answer: C

174) $19x + 7y = 6$

A) $y = \frac{6 - 19x}{7}$

B) $y = \frac{19}{7}x - \frac{6}{7}$

C) $y = \frac{19x + 6}{7}$

D) $y = \frac{19x - 6}{7}$

Answer: A

175) $x - \frac{1}{9}y = -7$

A) $y = x + 63$

B) $y = 9x + 7$

C) $y = 9x + 63$

D) $y = x + 7$

Answer: C

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

176) The sum of a number and 135

A) 135x

B) 135 + x

C) 135 – x

D) 135

Answer: B

177) 18 less a number x

A) 18 – x
B) x + 18
C) 18x
D) 18

Answer: A

178) 38 less than a number

A) x – 38
B) 38
C) 38x
D) 38 – x

Answer: A

179) 6 times a number

A) $\frac{6}{x}$
B) 6x
C) 6 + x
D) 6 – x

Answer: B

180) The product of 9 and a number

A) $\frac{9}{x}$
B) 9 + x
C) 9 – x
D) 9x

Answer: D

181) 9 less than 5 times a number

A) 9x – 5
B) 5x – 9
C) 5 – 9x
D) 9 – 5x

Answer: B

182) 5 more than 4 times a number

A) 4(5 + x)
B) 5x + 4
C) 9x
D) 4x + 5

Answer: D

183) Five times a number x decreased by eight

A) $5x + 8$

B) $\frac{5x}{8}$

C) $5x - 8$

D) $5 - 8x$

Answer: C

184) The quotient of 62 and a number

A) $x - 62$

B) $\frac{x}{62}$

C) $62 - x$

D) $\frac{62}{x}$

Answer: D

185) The product of 14 and a number, added to 20.

A) $280 + x$

B) $280x$

C) $14 + 20x$

D) $20 + 14x$

Answer: D

186) Four times a number, decreased by 53.

A) $4(x + 53)$

B) $4x - 53$

C) $4x + 53$

D) $4(x - 53)$

Answer: B

187) The quotient of 65 and the product of a number and –9.

A) $\frac{65}{-9x}$

B) $\frac{65}{x} - 9$

C) $\frac{-9x}{65}$

D) $-585x$

Answer: A

188) The product of –39 and the sum of a number and 5.

A) $-39 + 5x$

B) $-195x$

C) $-39(x + 5)$

D) $-39x + 5$

Answer: C

189) Seven times the sum of a number and –48.

A) 7+ x + (–48)

B) 7x – (–48)

C) 7(x + (–48))

D) 7x + (–48)

Answer: C

190) The quotient of 32 times a number and –7.

A) 32x – 7

B) $\frac{1}{-224x}$

C) $\frac{32x}{-7}$

D) 32x + 7

Answer: C

191) Two times a number decreased by one–eighth of the same number.

A) $2\left(x - \frac{1}{8}\right)$

B) $2x - \frac{1}{8}$

C) $\frac{x}{8} - 2x$

D) $2x - \frac{x}{8}$

Answer: D

192) Three–fourths of a number

A) $\frac{3}{4} + x$

B) $\frac{3}{4}x$

C) $\frac{3}{4} \div x$

D) $\frac{3}{4} - x$

Answer: B

193) one–half more than a number

A) $\frac{1}{2}x$

B) $x + \frac{2}{1}$

C) $\frac{2}{1}x$

D) $x + \frac{1}{2}$

Answer: D

194) 14 less than $-\frac{9}{5}$ times a number

A) $-\frac{9}{5}(x - 14)$

B) $-\frac{9}{5}x - 14$

C) $14 - \left(-\frac{9}{5}x\right)$

D) $14\left(x - \left(-\frac{9}{5}\right)\right)$

Answer: B

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

195) Four times a number added to 7 times the number equals 44.

A) $4x - 7x = 44$
B) $4x(7 + x) = 44$
C) $4(x + 7) = 44x$
D) $4x + 7x = 44$

Answer: D

196) When 4 times a number is subtracted from 7 times the number, the result is 33.

A) $4(x - 7) = 33x$
B) $7x - 4x = 33$
C) $4x(7 - x) = 33$
D) $4x + 11x = 33$

Answer: B

197) If 5 times a number is added to –8, the result is equal to 13 times the number.

A) $4x + (-8) = 13x$
B) $13(5x - 8) = -8$
C) $5x + (-8) = 13x$
D) $18x - 13x = 8$

Answer: C

198) The sum of four times a number and 1 is equal to the difference of twice the number and 7.

A) $4(x + 1) = 2x - 7$
B) $4x - 1 = 2x - 7$
C) $4x + 1 = 2x - 7$
D) $4x + 1 = 2x + 7$

Answer: C

199) The sum of a number and seven is negative twelve.

A) $n - 12 = 7$
B) $n + 7 = -12$
C) $-12 + n = 7$
D) $7n = -12$

Answer: B

200) Twelve more than the product of two and x yields sixty.

A) $60x + 2 = 12$

B) $2x + 12 = 60$

C) $12x + 60 = 2$

D) $2x + 60 = 12$

Answer: B

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

A) $20 - 9 - 8n = 5$

B) $8n - 29 = 5$

C) $29 - 8n = 5$

D) $20 - (9 - 8n) = 5$

Answer: C

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

A) $24 - 3x = 5x$

B) $3x - 24 = 5 + x$

C) $24 - 3x = 5 + x$

D) $3x - 24 = 5x$

Answer: D

203) 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

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

A) $4(x - 8) = x - 23$

B) $4x - 8 = x - 23$

C) $4(x - 8) = 23 - x$

D) $4x - 8 = 23 - x$

Answer: B

205) The quotient of –4 and a number, decreased by 8 is 44.

A) $\frac{x}{-4} - 8 = 44$

B) $\frac{-4}{x} - 8 = 44$

C) $\frac{x - 8}{-4} = 44$

D) $\frac{-4}{x - 8} = 44$

Answer: B

Solve the problem.

206) The sum of a number and three is negative thirteen. Find the number.

A) 16
B) –16
C) 0
D) –10

Answer: B

207) Three times a number, added to –5, is 16. Find the number.

A) 21
B) –7
C) 7
D) 63

Answer: C

208) Eight times a number, added to –18, is –42. Find the number.

A) 3
B) –24
C) –3
D) –192

Answer: C

209) Five times the sum of a number and –20 yields –15. Find the number.

A) 1
B) –23
C) –7
D) 17

Answer: D

210) A number subtracted from 17 yields the quotient of 28 and 7. Find the number.

A) 21
B) 12
C) –179
D) 13

Answer: D

211) 2 times a number less than 7 times the same number is 45. Find the number.

A) 3.1
B) –9
C) 9
D) 5

Answer: C

212) The sum of three consecutive integers is 447. Find the numbers.

A) 147, 149, 151
B) 149, 150, 151
C) 148, 149, 150
D) 147, 148, 149

Answer: C

213) The total price of a new RV is $56,210.58. The tax, title, and dealer charges amount to $710.58. Find the price of the RV before the extra charges.
A) $55,500.00
B) $54,789.42
C) $5550.00
D) $56,921.16

Answer: A

214) An inheritance of $34,000 is to be split between Ryan and Molly, with Ryan to receive $1000 more than Molly. How much will each receive?
A) Molly: $17,000; Ryan: $18,000
B) Molly: $17,500; Ryan: $16,500
C) Molly: $17,000; Ryan: $17,000
D) Molly: $16,500; Ryan: $17,500

Answer: D

215) Clancy went shopping for new workout clothing. Her shorts cost $23 less than a pair of running shoes and her jacket cost $28 more than the running shoes. Find the cost of the jacket if Clancy spent $207 on the items, before sales tax.
A) $67.33
B) $44.33
C) $129.00
D) $95.33

Answer: D

216) 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 $210,000, find each worker's salary.
A) president's salary = $52,500; department head's salary = $157,500
B) president's salary = $157,500; department head's salary = $52,500
C) president's salary = $15,750; department head's salary = $5250
D) president's salary = $105,000; department head's salary = $52,500

Answer: B

217) 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 = 6 marbles; 2nd bag = 18 marbles; 3rd bag = 12 marbles
B) 1st bag = 5 marbles; 2nd bag = 15 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 = 14 marbles; 3rd bag = 10 marbles

Answer: B

218) 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 $73 under this promotional deal, how many minutes of phone calls did he make? Round to the nearest integer, if necessary.
A) 1760
B) 1160
C) 3
D) 12

Answer: B

219) A car rental agency advertised renting a luxury, full–size car for $19.95 per day and $0.29 per mile. If you rent this car for 4 days, how many whole miles can you drive if you only have $200 to spend.

A) 607
B) 414
C) 9
D) 50

Answer: B

220) 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 45 and the U.S. won more than China who won more than Romania, how many medals did each team win?

A) U.S.: 14 medals; China: 13 medals; Romania: 12 medals
B) U.S.: 47 medals; China: 46 medals; Romania: 45 medals
C) U.S.: 16 medals; China: 15 medals; Romania: 14 medals
D) U.S.: 17 medals; China: 16 medals; Romania: 15 medals

Answer: C

221) Center City East Parking Garage has a capacity of 252 cars more than Center City West Parking Garage. If the combined capacity for the two garages is 1218 cars, find the capacity for each garage.

A) Center City East: 735 cars
Center City West: 483 cars
B) Center City East: 473 cars
Center City West: 745 cars
C) Center City East: 483 cars
Center City West: 735 cars
D) Center City East: 745 cars
Center City West: 473 cars

Answer: A

222) During an intramural basketball game, Team A scored 13 fewer points than Team B. Together, both teams scored a total of 145 points. How many points did Team A score during the game?

A) 72 points
B) 66 points
C) 67 points
D) 79 points

Answer: B

223) 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) 75
B) 70
C) 68
D) 72

Answer: D

224) Megan is having her yard landscaped. She obtained an estimate from two landscaping companies. Company A gave an estimate of $210 for materials and equipment rental plus $55 per hour for labor. Company B gave and estimate of $315 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) 10 hours
B) 11 hours
C) 7 hours
D) 6 hours

Answer: C

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

225) Carla and Alyssa will share the $29 prize.

A) Carla's share: c; Alyssa's share: c – 29
B) Carla's share: c; Alyssa's share: c + 29
C) Carla's share: c; Alyssa's share: 29 – c
D) Carla's share: c; Alyssa's share: 29 – 2c

Answer: C

226) A 58–centimeter piece of rope is cut into two pieces.

A) first piece: z cm; second piece: z + 58 cm
B) first piece: z cm; second piece: 58 – 2z cm
C) first piece: z cm; second piece: z – 58 cm
D) first piece: z cm; second piece: 58 – z cm

Answer: D

227) In the race for Student Body President, Jose received 484 more votes than Angela.

A) Angela's votes: x; Jose's votes: 484 – x
B) Angela's votes: x; Jose's votes: 484x
C) Angela's votes: x; Jose's votes: x + 484
D) Angela's votes: x; Jose's votes: x – 484

Answer: C

228) Ed has $4.57 less than 3 times the amount Israel has.

A) Israel's amount: 3x – 4.57; Ed's amount: x
B) Israel's amount: 4.57 – 3x; Ed's amount: x
C) Israel's amount: x; Ed's amount: 3x – 4.57
D) Israel's amount: x; Ed's amount: 4.57 – 3x

Answer: C

Find the unknown in each percent question.

229) What is 10% of 500?

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

Answer: C

230) What is 5% of 200?
A) 1
B) 10
C) 100
D) 0.1
Answer: B

231) What is 120% of 323?
A) 3876
B) 38.76
C) 38,760
D) 387.6
Answer: D

232) What is 8.4% of 1000?
A) 8400
B) 8
C) 84
D) 840
Answer: C

233) What is 36% of 1308?
A) 470.88
B) 4708.8
C) 47,088
D) 47.09
Answer: A

234) What is 87% of 410?
A) 3567
B) 35.67
C) 356.7
D) 35,670
Answer: C

235) What is 12.25% of 38?
A) 4.655
B) 3.10
C) 465.5
D) 46.55
Answer: A

236) 10% of 400 is what number?
A) 40
B) 4
C) 0.4
D) 400
Answer: A

237) 60% of 700 is what number?
A) 4.2
B) 4200
C) 420
D) 42
Answer: C

238) What number is 80% of 225?
A) 180
B) 1800
C) 18,000
D) 18
Answer: A

239) 0.2% of 7500 is what number?
A) 1500
B) 2
C) 150
D) 15
Answer: D

240) 5% of 500 is what number?
A) 0.25
B) 25
C) 250
D) 2.5
Answer: B

241) 1.8 is what percent of 40?
A) 0.45%
B) 2222%
C) 0.045%
D) 4.5%
Answer: D

242) 182.7 is what percent of 21?
A) 8.7%
B) 11.5%
C) 1.15%
D) 870%
Answer: D

243) What percent of 40 is 1?
A) 10%
B) 60%
C) 2.5%
D) 4000%
Answer: C

244) What percent of 8 is 80?
A) 25%
B) 10%
C) 20.1%
D) 1000%

Answer: D

245) 900 is what percent of 763?
A) 84.78%
B) 0.12%
C) 117.96%
D) 1.18%

Answer: C

246) 4.7 is what percent of 18.6?
A) 25.27%
B) 395.74%
C) 3.96%
D) 0.25%

Answer: A

247) What percent of 148 is 11.1?
A) 7.50%
B) 0.13%
C) 1333.33%
D) 0.08%

Answer: A

248) 73 is 20% of what number?
A) 3650
B) 14.6
C) 365
D) 36.5

Answer: C

249) 16 is 9% of what number?
A) 144
B) 17.78
C) 177.78
D) 1777.8

Answer: C

250) 50% of what number is 96?
A) 1920
B) 48
C) 19.2
D) 192

Answer: D

Solve the problem.

251) 11% of students at a university attended a lecture. If 5000 students are enrolled at the university, about how many students attended the lecture?
A) 5500 students
B) 55 students
C) 550 students
D) 55,000 students

Answer: C

252) A local animal shelter accepts abandoned cats and dogs. They usually receive twice as many cats as dogs. They estimate that 60% of the cats and 90% of the dogs that come in need some kind of medical treatment. If they treated 231 animals last year, how many cats and dogs did they take in?
A) 220 dogs, 440 cats
B) 110 dogs, 112 cats
C) 220 dogs, 110 cats
D) 110 dogs, 220 cats

Answer: D

253) The population of a town is currently 15,000. This represents an increase of 40% from the population 5 years ago. Find the population of the town 5 years ago. Round to the nearest whole number if necessary.
A) 9000
B) 37,500
C) 10,714
D) 6000

Answer: C

254) Suppose that 8% of the teachers at a university attended a conference. If 400 teachers attended the conference, how many teachers are at the university?
A) 4000 teachers
B) 5000 teachers
C) 40,000 teachers
D) 40 teachers

Answer: B

255) Alex and Juana went on a 20–mile canoe trip with their class. On the first day they traveled 10 miles. What percent of the total distance did they canoe?
A) 2%
B) 200%
C) 0.50%
D) 50%

Answer: D

256) Students at Maple School earned $512 selling candles. They want to accumulate $2000 for a club trip. What percent of their goal has been reached?
A) 4%
B) 40%
C) 0.256%
D) 25.6%

Answer: D

257) Alex has saved $252 at the bank. He wants to accumulate $1750 for a trip to soccer camp. What percent of his goal has been reached?
A) 14.4%
B) 70%
C) 7%
D) 0.144%

Answer: A

258) Sales at a local ice cream shop went up 60% in 5 years. If 31,000 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) 18,600 ice cream cones
B) 12,400 ice cream cones
C) 19,375 ice cream cones
D) 51,667 ice cream cones

Answer: C

259) When Milo got promoted at work, he received a 25% pay raise. He now earns $77,500 per year. What was his annual salary before his raise?
A) $15,500
B) $77,500
C) $62,000
D) $19,375

Answer: C

260) Ming got a 4% raise in her salary from last year. This year she is earning $33,280. How much did she make last year?
A) $8320
B) $32,000
C) $133,120
D) $1280

Answer: B

261) Because the budget cutbacks, MaryAnn was required to take a 5% pay cut. If she earned $30,000 before the pay cut, find her salary after the pay cut.
A) $29,850
B) $2850
C) $28,500
D) $29,985.00

Answer: C

262) The local clothing store marks up the price that it pays to the clothing manufacturer by 48%. If the selling price of a pair of jeans is $137, how much did the clothing store pay for the jeans?
A) $202.76
B) $23.62
C) $263.46
D) $92.57

Answer: D

263) Logan bought stocks and later sold them for $849,600, making a profit of 18%. How much did he pay for the stocks?
A) $152,928
B) $720,000
C) $129,600
D) $288,000,000

Answer: B

264) After receiving a discount of 6.5% on its bulk order of typewriter ribbons, John's Office Supply pays $2431. What was the price of the order before the discount? Round to the nearest dollar if necessary.
A) $2273
B) $2589
C) $2395
D) $2600

Answer: D

265) After a 13% price reduction, a boat sold for $28,710. What was the boat's price before the reduction? (Round to the nearest cent, if necessary.)
A) $33,000
B) $32,442.30
C) $3732.30
D) $220,846.15

Answer: A

266) Inclusive of a 6.6% sales tax, a diamond ring sold for $2771.60. Find the price of the ring before the tax was added. (Round to the nearest cent, if necessary.)
A) $2954.53
B) $2588.67
C) $182.93
D) $2600

Answer: D

267) 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 = 23°; 2nd angle = 67°
C) 1st angle = 22°; 2nd angle = 64°
D) 1st angle = 22°; 2nd angle = 68°

Answer: B

268) Two angles are complementary. The second angle measures 38° less than the first angle. What is the measure of the first angle?
A) 142°
B) 36°
C) 154°
D) 64°

Answer: D

269) Find two supplementary angles such that the first angle is 3° more than 5 times the second.
A) 14.5°; 75.5°
B) 29.5°; 150.5°
C) 30°; 150°
D) 150.5°; 29.5°

Answer: D

270) Find two supplementary angles such that the first angle is 2 times the second.
A) 30°; 60°
B) 60°; 120°
C) 180.00°; 360.00°
D) 90.00°; 90.00°

Answer: B

271) 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 90° more than the second angle. What is the measure of the first angle?
A) 105°
B) 15°
C) 45°
D) 60°

Answer: D

272) One angle of a triangle is 2 times as large as another. The measure of the third angle is 80° greater than that of the smallest angle. Find the measure of each angle.
A) 25°, 50°, 80°
B) 30°, 60°, 90°
C) 25°, 50°, 105°
D) 35°, 70°, 75°

Answer: C

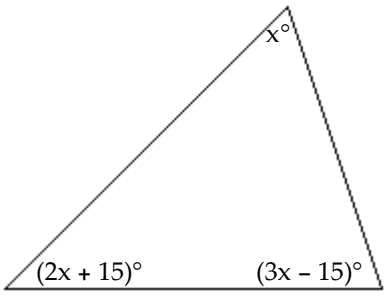
273) A triangle has angles of $(4x)°$, $(3x + 8)°$, and $(2x + 1)°$. Find the measure of each angle.
A) 39°, 57°, 76°
B) 39°, 65°, 76°
C) 19°, 39°, 76°
D) 19°, 65°, 76°

Answer: B

274) 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 88° more an the measure of the first angle. Find the measure of the third angle.
A) 121°
B) 101°
C) 111°
D) 116°

Answer: C

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



A) 30°, 75°, 75°
B) 60°, 75°, 45°
C) 45°, 82.5°, 52.5°
D) 90°, 60°, 30°

Answer: A

276) In an isosceles triangle, the third angle is 75 less than three times the measure of the base angles. Find the measure of each of the angles of the triangle.
A) 45°, 45°, 90°
B) 50°, 50°, 80°
C) 75°, 75°, 30°
D) 51°, 51°, 78°

Answer: D

277) The smallest angle of an isosceles triangle used in the wood frame of a boat measures 15°. 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 41.25°.
B) They each measure 165°.
C) They each measure 82.5°.
D) They each measure 7.5°.

Answer: C

278) To trim the edges of a rectangular table cloth, 60 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: 5 feet; width: 10 feet
B) length: 20 feet; width: 40 feet
C) length: 20 feet; width: 10 feet
D) length: 10 feet; width: 20 feet

Answer: D

279) A rectangular carpet has a perimeter of 200 inches. The length of the carpet is 80 inches more than the width. What are the dimensions of the carpet?
A) 55 by 65 inches
B) 90 by 10 inches
C) 90 by 100 inches
D) 95 by 100 inches

Answer: B

280) The length of a rectangular room is 8 feet longer than twice the width. If the room's perimeter is 220 feet, what are the room's dimensions?

A) Width = 34 ft; length = 76 ft
B) Width = 39 ft; length = 86 ft
C) Width = 68 ft; length = 152 ft
D) Width = 51 ft; length = 59 ft

Answer: A

281) You have taken up gardening for relaxation and have decided to fence in your new rectangular shaped masterpiece. The length of the garden is 4 meters and 44 meters of fencing is required to completely enclose it. What is the width of the garden?

A) 176 m
B) 11 m
C) 36 m
D) 18 m

Answer: D

282) 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 15 meters. How many cans of varnish will you need if each can covers 10 square meters?

A) 9 cans of varnish
B) 5 cans of varnish
C) 3 cans of varnish
D) 23 cans of varnish

Answer: C

283) The perimeter of a triangle is 47 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) 5 cm, 8 cm, 12 cm
B) 12 cm, 7 cm, 19 cm
C) 12 cm, 7 cm, 23 cm
D) 7 cm, 20 cm, 23 cm

Answer: B

284) An isosceles triangle has exactly two side that are equal in length. If the base measures 27 inches and the perimeter is 91 inches, find the length of the two congruent sides.

A) 16 inches
B) 128 inches
C) 64 inches
D) 32 inches

Answer: D

285) Mario's front patio is in the shape of a trapezoid with a height of 54 feet. The longer base is 14 feet longer than the shorter base, and the area of the patio is 5400 square feet. Find the length of each base of the trapezoidal patio.

A) 93 feet; 93 feet
B) 43 feet; 57 feet
C) 186 feet; 214 feet
D) 93 feet; 107 feet

Answer: D

286) A motorcycle traveling at 50 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) 7.5 miles
B) 225 miles
C) 4.5 miles
D) 56.3 miles

Answer: B

287) 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 65 miles per hour. How many miles did they drive on the way to California if the round trip took 10 hours?
A) 3575 miles
B) 595.8 miles
C) 297.9 miles
D) 5.4 miles

Answer: C

288) During a hurricane evacuation from the east coast of Georgia, a family traveled 270 miles west. For part of the trip, they averaged 50 mph, but as the congestion got bad, they had to slow to 20 mph. If the total time of travel was 6 hours, how many miles did they drive at the reduced speed?
A) 15 miles
B) 30 miles
C) 20 miles
D) 25 miles

Answer: C

289) A motorcycle traveling at 60 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) 180 miles
B) 60 miles
C) 3 miles
D) 6 miles

Answer: A

290) Two cars start from the same point and travel in the same direction. If one car is traveling 57 miles per hour and the other car is traveling at 48 miles per hour, how far apart will they be after 1.7 hours?
A) 178.5 miles
B) 15.3 miles
C) 81.6 miles
D) 96.9 miles

Answer: B

291) 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) 0.5 hours
B) 0.6 hours
C) 1.9 hours
D) 5.6 hours

Answer: C

292) Jeff starts driving at 65 miles per hour from the same point that Lauren starts driving at 70 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 250–mile range?

A) 1.9 hours
B) 2.1 hours
C) 1.6 hours
D) 1.8 hours

Answer: C

293) Alexander and Judy are 34 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) 11.3 hours
B) 3.1 hours
C) 2.8 hours
D) 23 hours

Answer: B

294) Two trains leave a train station at the same time. One travels north at 12 miles per hour. The other train travels south at 9 miles per hour. In how many hours will the two trains be 88.2 miles apart?

A) 4.7 hours
B) 8.4 hours
C) 4.2 hours
D) 2.1 hours

Answer: C

295) 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) 14 hours
D) $2\frac{1}{13}$ hours

Answer: D

296) 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) 0.75 hour
B) 1 hour
C) 0.67 hour
D) 0.5 hour

Answer: A

297) At 1 P.M. a freight train leaves Chicago traveling at 40 miles per hour. At 5 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) 8 hours
B) 4 hours
C) 1 hours
D) 16 hours

Answer: A

298) 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) 2.2 hours
B) 3.2 hours
C) 5.2 hours
D) 4.2 hours

Answer: B

299) A car traveling 61 miles per hour passes a bus traveling 56 in the same direction on the highway. If they maintain their speeds, how long will it take them to be 7.5 miles apart?

A) 2 hours
B) 3 hours
C) 1.5 hours
D) 2.5 hours

Answer: C

300) Dave can hike on level ground 3 miles an hour faster than he can on uphill terrain. Yesterday, he hiked 31 miles, spending 2 hours on level ground and 5 hours on uphill terrain. Find his average speed on level ground.

A) 4.4 mph
B) 6.6 mph
C) 3.6 mph
D) 7 mph

Answer: B

301) An airplane flies 470 miles with the wind and 320 against the wind in the same length of time. If the speed of the wind is 30 mph, what is the speed of the airplane in still air?

A) 158 mph
B) 163 mph
C) 64 mph
D) 148 mph

Answer: A

302) Two friends decide to meet in Chicago to attend a White Sox baseball game. Rob travels 168 miles in the same time that Carl travels 156 miles. Rob's trip uses more interstate highways and he can average 3 mph more than Carl. What is Rob's average speed?

A) 39 mph
B) 48 mph
C) 36 mph
D) 42 mph

Answer: D

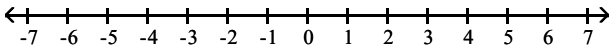
303) Adam and David were both driving east on the same highway. At 4:00 P.M., Adam, traveling at 60 miles per hour, was 20 miles east of David. A little later, David, traveling at 70 miles per hour, passed Adam. At what time did David pass Adam?

A) 8:00 P.M.
B) 10:00 P.M.
C) 6:00 P.M.
D) 6:30 P.M.

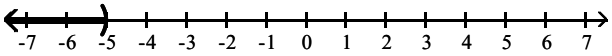
Answer: C

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

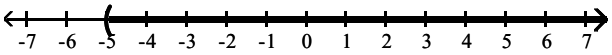
304) $x > -5$



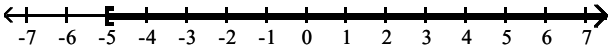
A) $(-\infty, -5)$



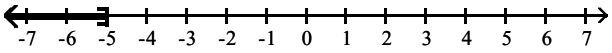
B) $(-5, \infty)$



C) $[-5, \infty)$

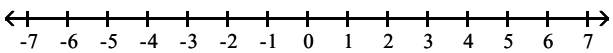


D) $(-\infty, -5]$

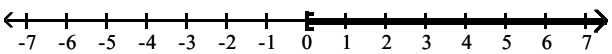


Answer: B

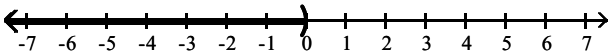
305) $x < 0$



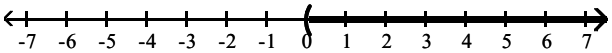
A) $[0, \infty)$



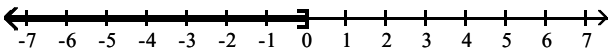
B) $(-\infty, 0)$



C) $(0, \infty)$

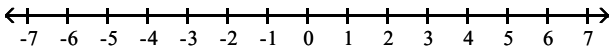


D) $(-\infty, 0]$

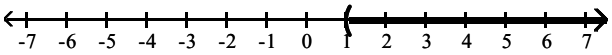


Answer: B

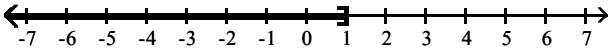
306) $x \geq 1$



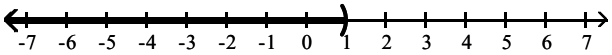
A) $(1, \infty)$



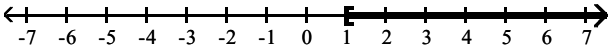
B) $(-\infty, 1]$



C) $(-\infty, 1)$

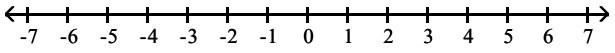


D) $[1, \infty)$

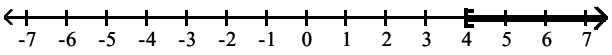


Answer: D

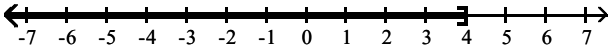
307) $x \leq 4$



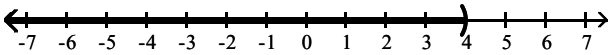
A) $[4, \infty)$



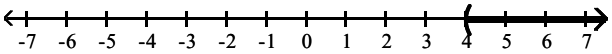
B) $(-\infty, 4]$



C) $(-\infty, 4)$

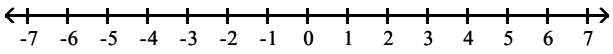


D) $(4, \infty)$

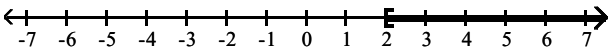


Answer: B

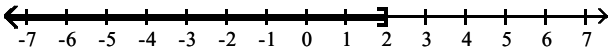
308) $2 < x$



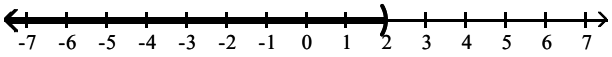
A) [2, ∞)



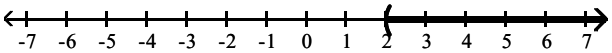
B) (−∞, 2]



C) (−∞, 2)



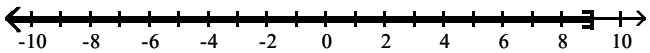
D) (2, ∞)



Answer: D

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

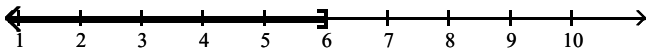
309)



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

Answer: D

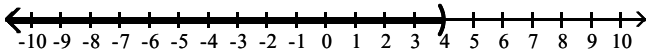
310)



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

Answer: B

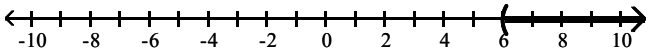
311)



A) (4, ∞)
B) (−∞, 4]
C) [4, ∞)
D) (−∞, 4)

Answer: D

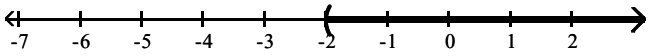
312)



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

Answer: C

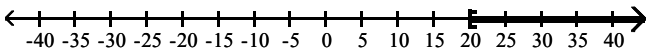
313)



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

Answer: D

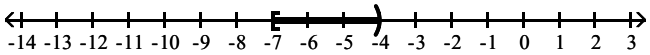
314)



A) (20, ∞)
B) [20, ∞)
C) (−∞, 20)
D) (−∞, 20]

Answer: B

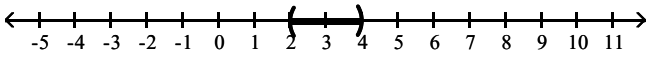
315)



A) [−7, −4)
B) (−7, −4)
C) (−7, −4]
D) [−7, −4]

Answer: A

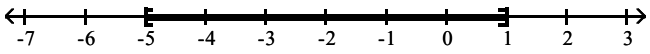
316)



A) [2, 4)
B) [2, 4]
C) (2, 4]
D) (2, 4)

Answer: D

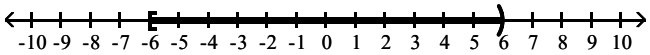
317)



A) [–5, 1)
B) (–5, 1)
C) (–5, 1]
D) [–5, 1]

Answer: D

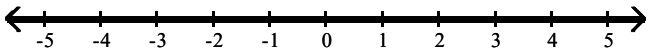
318)



A) (–6, 6]
B) [–6, 6]
C) [–6, 6)
D) (–∞, 6)

Answer: C

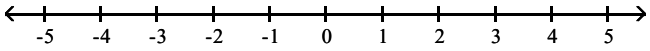
319)



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

Answer: A

320)

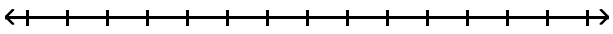


A) (–∞, ∞)
B) [–∞, ∞]
C) all real numbers
D) ∅

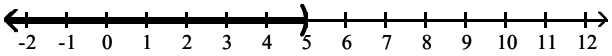
Answer: D

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

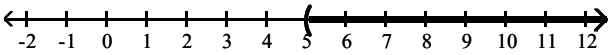
321) $x + 4 < 9$



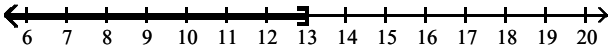
A) $(-\infty, 5)$



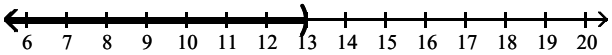
B) $(5, \infty)$



C) $(-\infty, 13]$

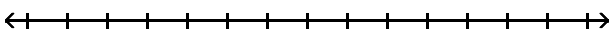


D) $(-\infty, 13)$

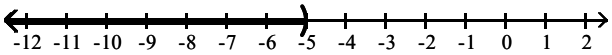


Answer: A

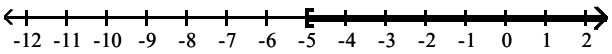
322) $x - 1 \leq -6$



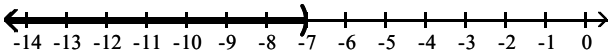
A) $(-\infty, -5)$



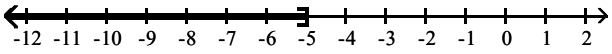
B) $[-5, \infty)$



C) $(-\infty, -7)$

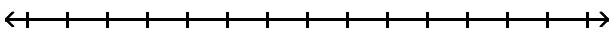


D) $(-\infty, -5]$

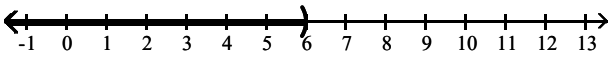


Answer: D

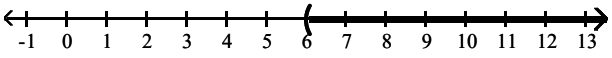
323) $x - 5 < 1$



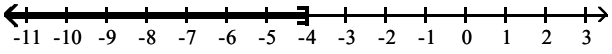
A) $(-\infty, 6)$



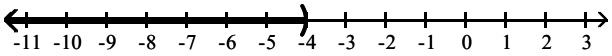
B) $(6, \infty)$



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

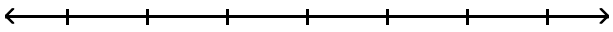


D) $(-\infty, -4)$

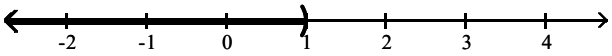


Answer: A

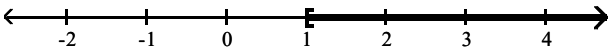
324) $-1 > x - 2$



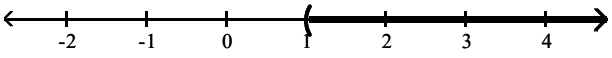
A) $(-\infty, 1)$



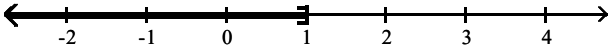
B) $[1, \infty)$



C) $(1, \infty)$

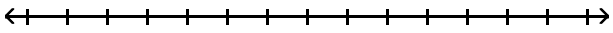


D) $(-\infty, 1]$

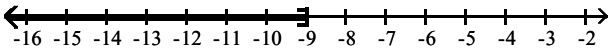


Answer: A

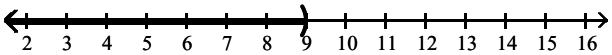
325) $5x \geq -45$



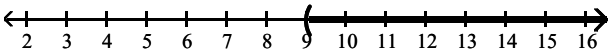
A) $(-\infty, -9]$



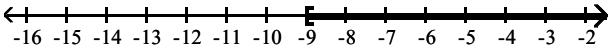
B) $(-\infty, 9)$



C) $(9, \infty)$

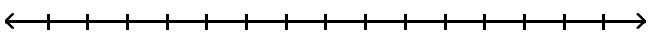


D) $[-9, \infty)$

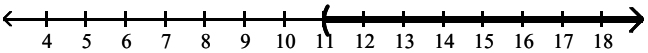


Answer: D

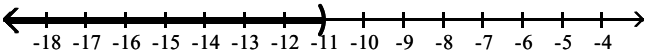
326) $-5x > 55$



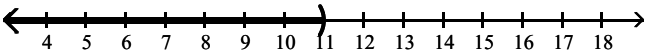
A) $(11, \infty)$



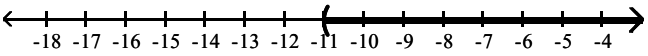
B) $(-\infty, -11)$



C) $(-\infty, 11)$

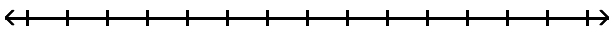


D) $(-11, \infty)$

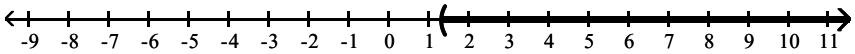


Answer: B

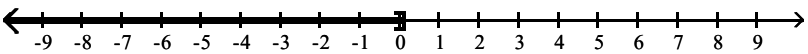
327) $\frac{1}{3}x \geq 4$



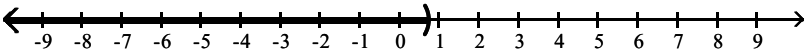
A) $(\frac{4}{3}, \infty)$



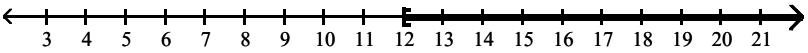
B) $(-\infty, \frac{1}{12}]$



C) $(-\infty, \frac{3}{4})$

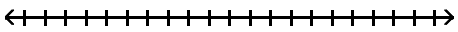


D) [12, ∞)

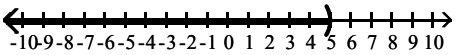


Answer: D

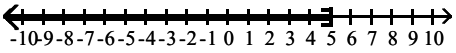
328) $3x + 6 < 21$



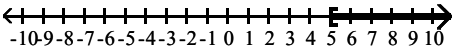
A) $(-\infty, 5)$



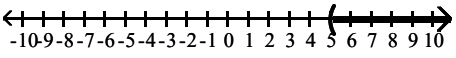
B) $(-\infty, 5]$



C) $[5, \infty)$

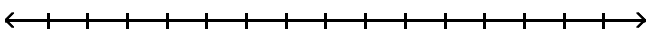


D) $(5, \infty)$

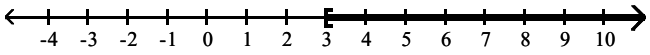


Answer: A

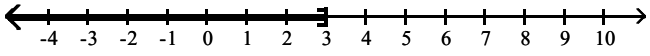
329) $3x - 3 \geq 6$



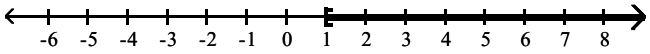
A) [3, ∞)



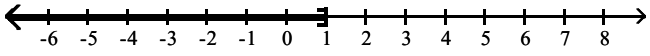
B) (−∞, 3]



C) [1, ∞)

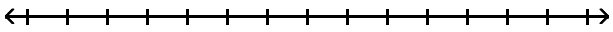


D) (−∞, 1]

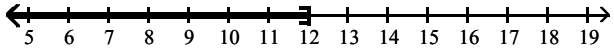


Answer: A

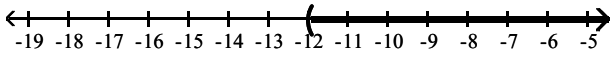
330) $4x > 3x - 12$



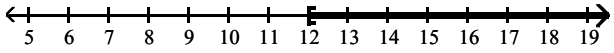
A) (−∞, 12]



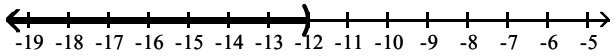
B) (−12, ∞)



C) [12, ∞)

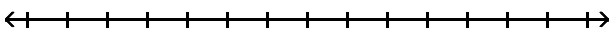


D) (−∞, −12)

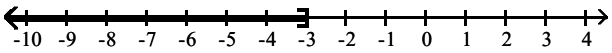


Answer: B

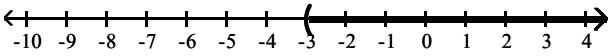
331) $3x - 6 > 2x - 9$



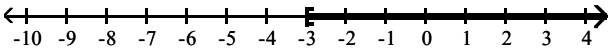
A) $(-\infty, -3]$



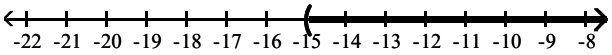
B) $(-3, \infty)$



C) $[-3, \infty)$

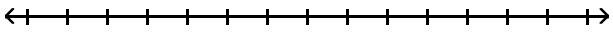


D) $(-15, \infty)$

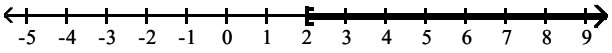


Answer: B

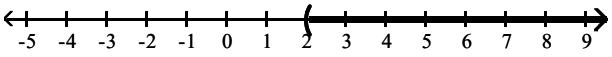
332) $5x + 3 \geq 4x + 5$



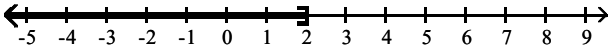
A) $[2, \infty)$



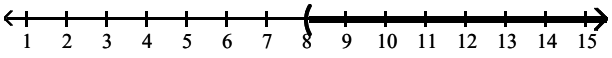
B) $(2, \infty)$



C) $(-\infty, 2]$

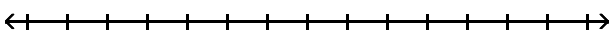


D) $(8, \infty)$

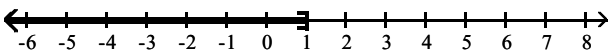


Answer: A

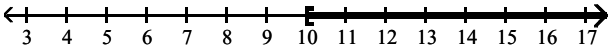
333) $5x - 5 \geq 4x - 5$



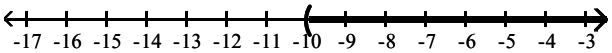
A) $(-\infty, 1]$



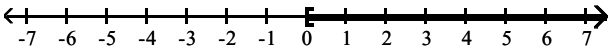
B) $[10, \infty)$



C) $(-10, \infty)$

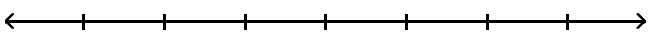


D) $[0, \infty)$

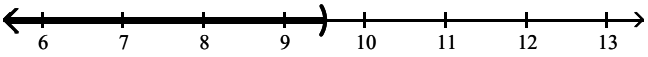


Answer: D

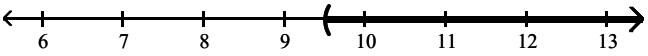
334) $1.4x - 4.2 > 0.6x + 3.4$



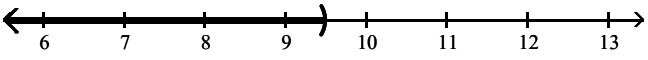
A) $(-\infty, 9.5)$



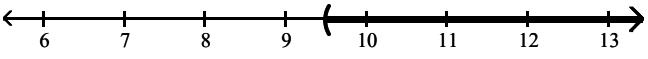
B) $(9.5, \infty)$



C) $(-\infty, 9.49)$

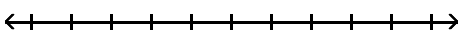


D) $(9.49, \infty)$

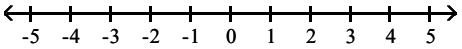


Answer: B

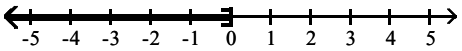
335) $4x \leq 4(x + 12)$



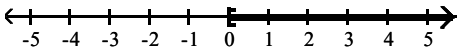
A) ∅



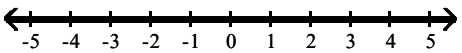
B) $(-\infty, 0]$



C) $[0, \infty)$

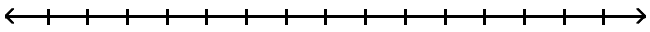


D) $(-\infty, \infty)$

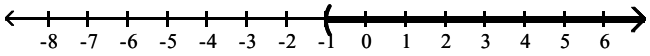


Answer: D

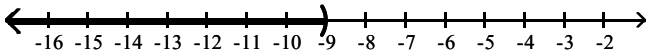
336) $4x + 4 < 5(x - 1)$



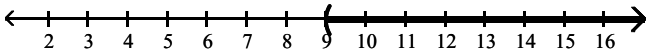
A) $(-1, \infty)$



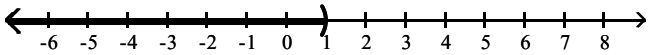
B) $(-\infty, -9)$



C) $(9, \infty)$

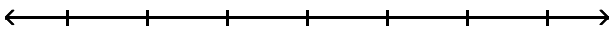


D) $(-\infty, 1)$

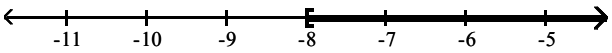


Answer: C

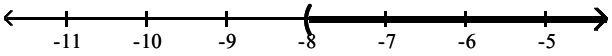
337) $18x + 12 > 3(5x - 4)$



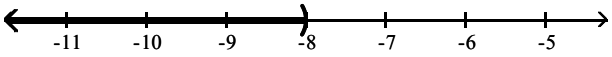
A) $[-8, \infty)$



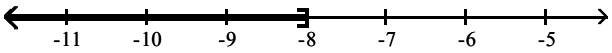
B) $(-8, \infty)$



C) $(-\infty, -8)$

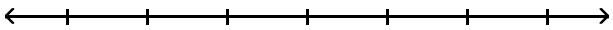


D) $(-\infty, -8]$

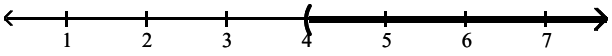


Answer: B

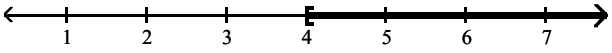
338) $-3(2x + 9) < -9x - 15$



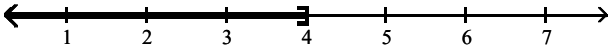
A) $(4, \infty)$



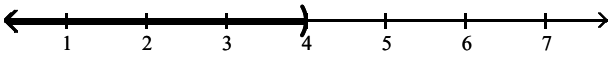
B) $[4, \infty)$



C) $(-\infty, 4]$

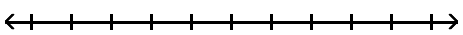


D) $(-\infty, 4)$

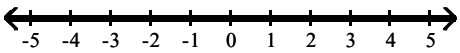


Answer: D

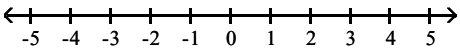
339) $5x + 8 > 5(x + 6)$



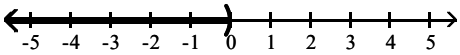
A) $(-\infty, \infty)$



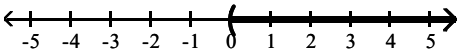
B) $\varnothing$



C) $(-\infty, 0)$

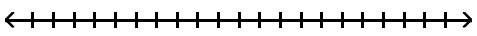


D) $(0, \infty)$

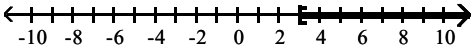


Answer: B

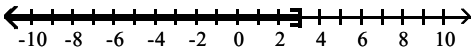
340) $8 - 3(2 - x) \leq 11$



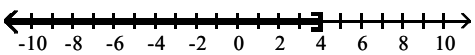
A) $[3, \infty)$



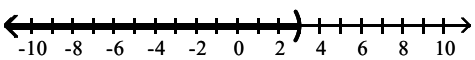
B) $(-\infty, 3]$



C) $(-\infty, 4]$

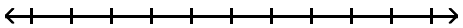


D) $(-\infty, 3)$

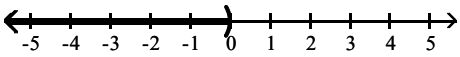


Answer: B

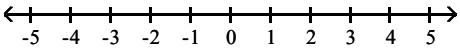
341) $-3(-3 - x) < 5x + 21 - 12 - 2x$



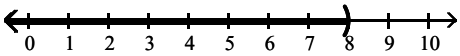
A) $(-\infty, 0)$



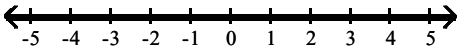
B) $\varnothing$



C) $(-\infty, 8)$

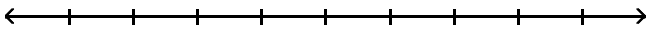


D) $(-\infty, \infty)$

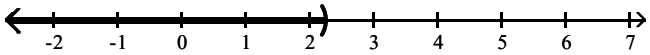


Answer: B

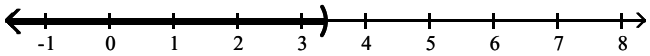
342) $-3(2x + 3) \geq 2[4x - 3(x - 3)]$



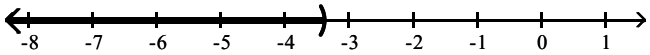
A) $\left(-\infty, \frac{9}{4}\right]$



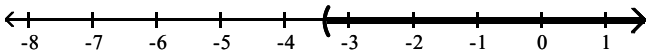
B) $\left(-\infty, \frac{27}{8}\right]$



C) $\left(-\infty, -\frac{27}{8}\right]$

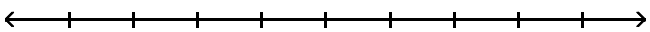


D) $\left[-\frac{27}{8}, \infty\right)$

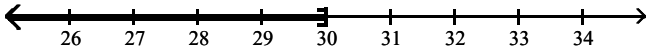


Answer: C

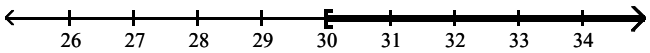
343) $\frac{3x + 25}{5} < 23$



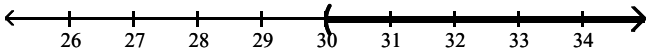
A) $(-\infty, 30]$



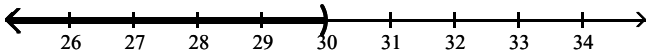
B) $[30, \infty)$



C) $(30, \infty)$

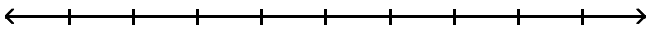


D) $(-\infty, 30)$

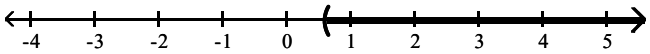


Answer: D

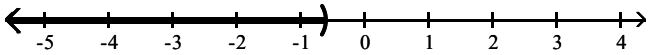
344) $\frac{1}{2} - \frac{5}{6}x < 1$



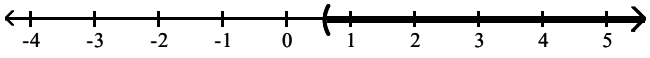
A) $\left(\frac{3}{5}, \infty\right)$



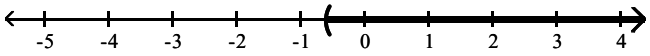
B) $\left(-\infty, -\frac{3}{5}\right)$



C) $\left(\frac{3}{5}, \infty\right)$

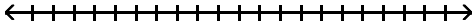


D) $\left(-\frac{3}{5}, \infty\right)$

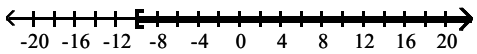


Answer: D

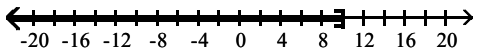
345) $\frac{x}{2} \geq \frac{x}{10} + 4$



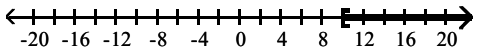
A) [–10, ∞)



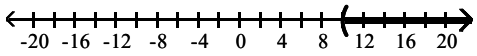
B) (–∞, 10]



C) [10, ∞)



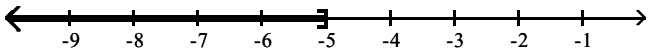
D) (10, ∞)



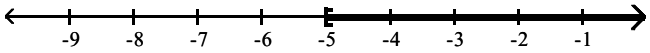
Answer: C

346) $\frac{x}{20} \leq \frac{x}{2} - \frac{2x - 1}{4}$

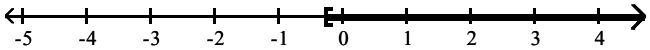
A) $(-\infty, -5]$



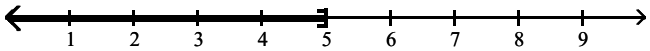
B) $[-5, \infty)$



C) $\left[-\frac{5}{19}, \infty\right)$

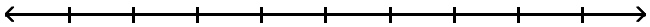


D) $(-\infty, 5]$

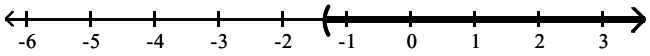


Answer: D

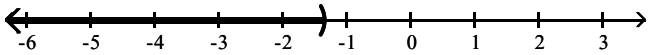
347) $\frac{3}{4}x > \frac{1}{5}(3x - 1)$



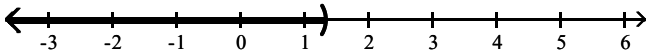
A) $\left(-\frac{4}{3}, \infty\right)$



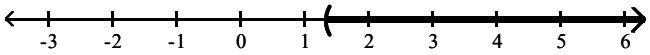
B) $\left(-\infty, -\frac{4}{3}\right)$



C) $\left(-\infty, \frac{4}{3}\right)$

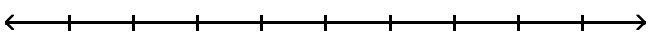


D) $\left(\frac{4}{3}, \infty\right)$

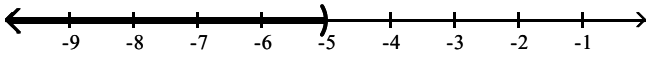


Answer: A

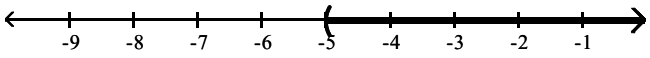
348) $\frac{1}{3}(x - 3) > \frac{1}{9}(5x + 1)$



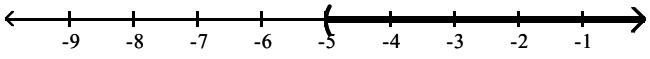
A) $(-\infty, -5)$



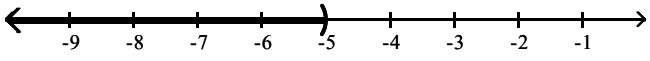
B) $(-5, \infty)$



C) $(-5, \infty)$



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



Answer: A

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

349) The cost of shoes must be less than $85.

A) $x < 85$
B) $x \geq 85$
C) $x \leq 85$
D) $x > 85$

Answer: A

350) The speed of the bike is more than 19 mph.

A) $x > 19$
B) $x \geq 19$
C) $x \leq 19$
D) $x < 19$

Answer: A

351) The number of people the school can hold is at most 101.

A) $x \leq 101$
B) $x > 101$
C) $x < 101$
D) $x \geq 101$

Answer: A

352) The rocket must reach a speed of at least 966 mph.

A) $x > 966$
B) $x \geq 966$
C) $x \leq 966$
D) $x < 966$

Answer: B

353) The price of admission was between $61 and $73.

A) $x < 73$

B) $73 < x < 61$

C) $x > 61$

D) $61 < x < 73$

Answer: D

Solve the problem.

354) Claire has received scores of 85, 88, 87, and 90 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 87? (Hint: The average of a list of numbers is their sum divided by the number of numbers in the list.)

A) 85

B) 86

C) 83

D) 84

Answer: A

355) A student scored 74, 79, and 98 on three algebra tests. What must he score on the fourth test in order to have an average grade of at least 85?

A) 89

B) 84

C) 63

D) 30

Answer: A

356) A certain store has a fax machine available for use by its customers. The store charges $2.10 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 $5.60

A) at most 49 pages

B) at most 3 pages

C) at most 8 pages

D) at most 11 pages

Answer: C

357) An archer has $144 to spend on a new archery set. A certain set containing a bow and three arrows costs $64. With the purchase of this set, he can purchase additional arrows for $4 per arrow. Use an inequality to find the maximum number of arrows he could obtain, including those with the set, for his $144.

A) at most 36 arrows

B) at most 20 arrows

C) at most 23 arrows

D) at most $\frac{9}{4}$ arrows

Answer: C

358) When making a long distance call from a certain pay phone, the first three minutes of a call cost $1.50. After that, each additional minute or portion of a minute of that call costs $0.30. Use an inequality to find the maximum number of minutes one can call long distance for $2.40.

A) at most 2 minutes
B) at most 3 minutes
C) at most 8 minutes
D) at most 6 minutes

Answer: D

359) It takes 14 minutes to set up a candy making machine. Once the machine is set up, it produces 30 candies per minute. Use an inequality to find the number of candies that can be produced in 3 hours if the machine has not yet been set up.

A) at most 90 candies
B) at most 2100 candies
C) at most 1260 candies
D) at most 4980 candies

Answer: D

360) A standard train ticket in a certain city costs $2.50 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 $1.75 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) 26 or more times
B) 23 or more times
C) 25 or more times
D) 24 or more times

Answer: C

361) During the first five months of the year, Len earned commissions of $2950, $3230, $3700, $3580, and $3100. If Len must have average monthly earnings of at least $3380 in order to qualify for retirement benefits, what must he earn in the sixth month in order to qualify for benefits?

A) at least $3720
B) at least $3380
C) at least $3323
D) at least $3312

Answer: A

362) ABC phone company charges $17 per month plus 6¢ per minute for phone calls. XYZ phone company charges $8 per month plus 9¢ 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) Less than 300 minutes
B) More than 300 minutes
C) Less than 30 minutes
D) More than 30 minutes

Answer: A

363) Using data from 1996–1998, the annual number of cars sold at a certain dealership can be modeled by the formula $y = 2x + 1$, 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 19 thousand?

A) 2003
B) 2007
C) 2005
D) 2009

Answer: C

364) Lauren earns $4 an hour selling encyclopedias door–to–door. She also earns $20 in commission per set of encyclopedias sold. To pay her rent this week, she must earn at least $164, and she only has time to work 11 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 8 sets of encyclopedias.
B) She would have to sell at least 7 sets of encyclopedias.
C) She would have to sell at least 5 sets of encyclopedias.
D) She would have to sell at least 6 sets of encyclopedias.

Answer: D

365) 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 $61. If the bread–making supplies cost $0.67 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 19 weeks
B) at least 18 weeks
C) at least 20 weeks
D) at least 21 weeks

Answer: A

Solve the equation. Check your solution.

366) $x - 18 = -5$

A) {–23}
B) {–13}
C) {13}
D) {23}

Answer: C

367) $-\frac{1}{2}y = -\frac{4}{5}$

A) $\left\{-\frac{16}{5}\right\}$
B) $\left\{\frac{5}{8}\right\}$
C) $\left\{\frac{8}{5}\right\}$
D) $\left\{-\frac{8}{5}\right\}$

Answer: C

368) $5(2x + 7) = 8x$

A) $\left\{\frac{35}{2}\right\}$

B) $\left\{\frac{35}{8}\right\}$

C) $\left\{-\frac{35}{2}\right\}$

D) $\left\{\frac{2}{35}\right\}$

Answer: C

369) $4(2x - 3) = 7(x + 5)$

A) {27}

B) {47}

C) {–23}

D) {23}

Answer: B

370) $\frac{3}{5} + \frac{1}{2}x = \frac{1}{10}$

A) $\{1\}$

B) $\left\{\frac{5}{2}\right\}$

C) $\{-1\}$

D) $\left\{-\frac{5}{2}\right\}$

Answer: C

371) $6y + 1.9 = -52.7$

A) {–10.7}

B) {–5.1}

C) {–5.3}

D) {–9.1}

Answer: D

372) $3x - 7(4 + x) = -4(x + 8)$

A) all real numbers

B) {–32}

C) {–28}

D) ∅

Answer: D

373) $14(9x - 2) = 4x - 8$

A) $\left\{\frac{18}{61}\right\}$

B) $\left\{\frac{2}{13}\right\}$

C) $\left\{-\frac{10}{61}\right\}$

D) $\left\{\frac{10}{61}\right\}$

Answer: D

Provide an appropriate response.

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

(a) Solve for w.

(b) Find w when $V = 1070.7\ ft^3$, $l = 8.3$ ft, and $h = 12.9$ ft.

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

(b) $w = 107.07$ ft

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

(b) $w = 10$ ft

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

(b) $w = 107.07$ ft

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

(b) $w = 10$ ft

Answer: B

375) Equation of a line: $5x + 3y = 45$

(a) Solve for y.

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

A) (a) $y = \frac{5}{3}x + 15$

(b) $y = \frac{65}{3}$

B) (a) $y = -\frac{5}{3}x + 15$

(b) $y = 25$

C) (a) $y = -\frac{5}{3}x + 15$

(b) $y = \frac{25}{3}$

D) (a) $y = -\frac{5}{3}x + 45$

(b) $y = \frac{115}{3}$

Answer: C

376) Translate the following statement into an equation: 2 times the sum of a number and 1 is equal to 7 less than the product of 20 and the number. DO NOT SOLVE.

A) $2(x + 1) = 20x - 7$
B) $2x + 1 = 20x - 7$
C) $2(x + 1) = 20(x - 7)$
D) $2x + 1 = 20(x - 7)$

Answer: A

377) 26 is 13% of a number. Find the number.

A) 3.38
B) 338
C) 2
D) 200

Answer: D

Solve the problem.

378) The sum of three consecutive integers is 435. Find the integers.

A) 143, 145, 147
B) 145, 146, 147
C) 143, 144, 145
D) 144, 145, 146

Answer: D

379) A rectangular carpet has a perimeter of 160 inches. The length of the carpet is 48 inches more than the width. What are the dimensions of the carpet?

A) 64 inches by 16 inches
B) 72 inches by 80 inches
C) 48 inches by 64 inches
D) 64 inches by 80 inches

Answer: A

380) If two planes leave an airport at the same time with one flying west at 720 miles per hour and the other flying east at 31 0 miles per hour, how long will it take them to be 5150 miles apart?

A) 6 hours
B) 4 hours
C) 4.5 hours
D) 5 hours

Answer: D

381) A 10–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: 28 feet; longer piece: 30 feet
B) shorter piece: 2 feet.; longer piece: 8 feet
C) shorter piece: 5 feet; longer piece: 30 feet
D) shorter piece: 6 feet; longer piece: 32 feet

Answer: B

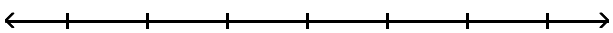
382) After a 13% price reduction, a boat sold for $22,620. What was the boat's price before the reduction? (Round to the nearest cent, if necessary.)

A) $25,560.60
B) $2940.60
C) $174,000.00
D) $26,000

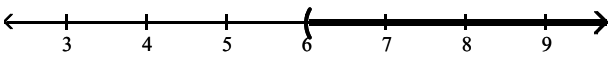
Answer: D

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

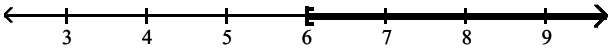
383) $-4(4x + 3) \geq -20x + 12$



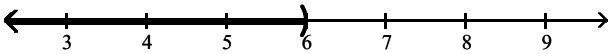
A) $\{x \mid x > 6\}; (6, \infty)$



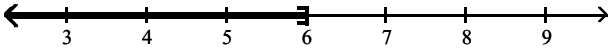
B) $\{x \mid x \geq 6\}; [6, \infty)$



C) $\{x \mid x < 6\}; (-\infty, 6)$

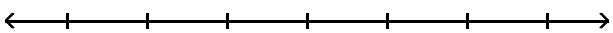


D) $\{x \mid x \leq 6\}; (-\infty, 6]$

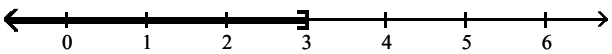


Answer: B

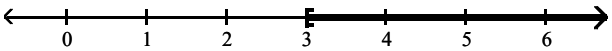
384) $35x + 15 > 5(6x + 6)$



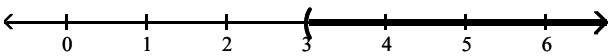
A) $\{x \mid x \leq 3\}; (-\infty, 3]$



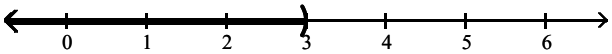
B) $\{x \mid x \geq 3\}; [3, \infty)$



C) $\{x \mid x > 3\}; (3, \infty)$



D) $\{x \mid x < 3\}; (-\infty, 3)$



Answer: C

Solve the problem.

385) 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 $0.25. Find the maximum number of minutes one can call long distance for $7.45.

A) at most 3 minutes
B) at most 30 minutes
C) at most 23 minutes
D) at most 20 minutes

Answer: C