Test Bank for Introductory Algebra for College Students 6th Edition Blitzer 9780321758958 0321758951
Link full download:
Solution Manual:

Test bank:

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.
Determine whether the equation in one variable is linear.

1) $x - 9 = 3$

    A) linear   B) not linear

1) _____

2) $x^2 - 8 = 8$

    A) linear   B) not linear

2) _____

3) $\dfrac{5}{x} = 14$

    A) linear   B) not linear

3) _____

4) $12x + 11 = 13$

    A) linear   B) not linear

4) _____

5) $\dfrac{x}{12} + 18 = 2$

    A) linear   B) not linear

5) _____

6) $x + \pi = 0.$

    A) linear   B) not linear

6) _____

7) $9 - 7 = 0$

    A) linear   B) not linear

7) _____

8) $71.2x = 1.7$

    A) linear   B) not linear

8) _____

9) $6(x - 5) = 0$

    A) linear   B) not linear

9) _____

10) $= 15$

    A) linear   B) not linear

10) _____

11)   -23 =   16   11) _____
        A) linear   B) not linear

12) 6x = 6   12) _____

x^3

A) linear   B) not linear

Solve the equation.

13) a - 23 = 7

    A) {-30}   B) {30}   C) {16}   D) {-16}

13) _____

14) x + 8 = - 12

    A) {4}   B) {- 20}   C) {- 4}   D) {20}

14) _____

15) x + 12 = 7

    A) {- 5}   B) {- 19}   C) {5}   D) {19}

15) _____

16) - 12 = b - 17

    A) {29}   B) {5}   C) {-5}   D) {-29}

16) _____

17) - 18 = b + 9

    A) {27}   B) {-9}   C) {9}   D) {-27}

17) _____

18) - 4 + b = 13

    A) {17}   B) {-9}   C) {-17}   D) {9}

18) _____

19) $\frac{1}{2} + x = 12$

    A) $\left\{\frac{23}{2}\right\}$ B) {23}   C) $\left\{\frac{25}{2}\right\}$ D) $\left\{\frac{11}{2}\right\}$

19) _____

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

    A) $\left\{\frac{5}{7}\right\}$ B) {1}   C) $\left\{\frac{5}{6}\right\}$ D) $\left\{\frac{4}{7}\right\}$

20) _____

21) $x + \frac{1}{5} = -\frac{1}{15}$

    A) $\left\{-\frac{2}{15}\right\}$ B) $\left\{-\frac{7}{25}\right\}$ C) $\left\{-\frac{4}{15}\right\}$ D) $\left\{-\frac{1}{10}\right\}$

21) _____

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

    A) $\left\{-\frac{13}{18}\right\}$ B) $\left\{\frac{13}{18}\right\}$ C) $\left\{-\frac{1}{6}\right\}$ D) $\left\{-\frac{20}{27}\right\}$

22) _____

23) $-\frac{2}{5} + z = \frac{1}{6}$

    A) $\left\{\frac{3}{11}\right\}$ B) $\left\{\frac{1}{2}\right\}$ C) $\left\{\frac{17}{30}\right\}$ D) $\left\{-\frac{17}{30}\right\}$

23) _____

24) 4.1 + x = 19.6

    A) {15}   B) {23.7}   C) {15.5}   D) {23.2}

24) _____

25) - 18.4 - m = 26.9

    A) {8.5}   B) {-8.5}   C) {45.3}   D) {- 45.3}

25) _____

26) 10 + 6p = 7p

    A) {6}   B) {10}   C) {-10}   D) {-3}

26) _____

27) 7y = 6y - 3.8

    A) {7}   B) {-16.8}   C) {-3.8}   D) {3.8}

27) _____

28) 17x - 9 = 11x + 3

    A) {5}   B) {3}   C) {0}   D) {2}

28) _____

29) 10x - 2 - 7x = 16   29) _____

    A) {7}   B) {4}   C) {6}   D) {9}

30) 5(y + 6) = 6(y - 2)   30) _____

    A) {18}   B) {42}   C) {-18}   D) {-42}

31) 5(2z - 3) = 9(z + 2)   31) _____

    A) {-3}   B) {8}   C) {3}   D) {33}

32) 10y = 6y + 10 + 3y   32) _____

    A) {-10}   B) {100}   C) {10}   D) {-100}

33) - 6a + 2 + 7a = 7 - 26   33) _____

    A) {35}   B) {-21}   C) {21}   D) {-35}

34) - 6b + 3 + 4b = -3b + 8   34) _____

    A) {8}   B) {-8}   C) {-3}   D) {5}

35) - 8.9 + 5x - 6.3 + 3x - 2.5 = 5.6 + 9x + 1.2   35) _____

    A) {10.9}   B) {24.5}   C) {-10.9}   D) {-24.5}

Use the given information to write an equation. Let x represent the number described in the exercise. Then solve the equation and find the number.

36) The sum of a number and forty-four is fifty.   36) _____

    A) x + 44 = 50; 6   B) x - 44 = 50; 94

    C) x ÷ 44 = 50; 2200   D) 44x = 50; 1.14

37) Twenty-nine increased by a number equals fifty-two.   37) _____

    A) 29 + 52 = x; 81   B) 29 - x = 52; -23   C) 29 + x = 52; 23   D) 29x = 52; 1.79

38) If 306 is subtracted from a number, the result is 606.   38) _____

    A) x - 306   = 606; -912   B) x - 306   = 606; 912

    C) x + 606   = 306; -300   D) x + 306   = 606; 300

39) If 328 is added to a number, the result is 658.   39) _____

    A) x - 328 = 658; 986   B) 328 + x = 658; 330

    C) x + 328 = 658; -330   D) 328 + x = 658; -986

Solve.

40) The cost of having a car towed is given by the formula C = 3x + 55, where C is in dollars and x is   40) _____
the number of miles the car is towed. Find the cost of having a car towed 2 miles.

    A) $61   B) $51   C) $58   D) $6

41) The monthly cost of a certain long distance service is given by the formula $C = 0.05t + 4.95$ where C is in   41) _____
dollars and t is the amount of time in minutes called in a month. Find the cost of calling
long distance for 110 minutes in a month.

    A) $5.50   B) $9.45   C) $15.95   D) $10.45

42) The amount of water in a leaky bucket is given by the formula $f = 126 - 10t$, where f is in ounces   42) _____
and t is in minutes. Find the amount of water in the bucket after 3 minutes.

    A) 116 oz   B) 156 oz   C) 30 oz   D) 96 oz

43) The altitude above sea level of an airplane just after taking off from an airport on a high plateau is given by the formula $h = 400t + 2973$, where h is in feet and t is the time in minutes since take-off. Find the altitude of the airplane after 8 minutes.

43) _____

    A) 6173 ft   B) 6273 ft   C) 3200 ft   D) 6073 ft

Solve the equation using the multiplication property of equality.

44) $\frac{1}{21}a = 0$

44) _____

    A) {21}   B) {0}   C) {1}   D) {-21}

45) $\frac{n}{3} = 15$

45) _____

    A) {17}   B) {18}   C) {45}   D) {5}

46) $-\frac{n}{2} = -8$

46) _____

    A) {- 16}   B) {10}   C) {16}   D) {- 10}

47) $\frac{v}{-4} = 12$

47) _____

    A) {-16}   B) {16}   C) {48}   D) {-48}

48) $5x = 30$

48) _____

    A) {6}   B) {25}   C) $\left\{\frac{1}{6}\right\}$ D) {150}

49) $18x = 0$

49) _____

    A) {0}   B) {1}   C) {18}   D) {-18}

50) $5a = -20$

50) _____

    A) {-4}   B) {1}   C) {-25}   D) {25}

51) $-2x = -12$

51) _____

    A) {6}   B) {2}   C) {10}   D) {-10}

52) $-28x = 24$

52) _____

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

53) $\frac{1}{4}x = -9$

53) _____

    A) {-3}   B) {-6}   C) {-36}   D) {-5}

54) $15 = -\frac{3}{4}x$

54) _____

    A) $\left\{-\frac{45}{4}\right\}$ B) $\left\{-\frac{57}{4}\right\}$ C) {- 20}   D) $\left\{-\frac{63}{4}\right\}$

55) $\frac{7}{8}x = 35$

55) _____

A) $\left\{\dfrac{287}{8}\right\}$ B) $\left\{\dfrac{273}{8}\right\}$ C) {40}   D) $\left\{\dfrac{245}{8}\right\}$

56) $\dfrac{4}{5} - \dfrac{1}{7} s =$

56) _____

A) $\left\{\dfrac{5}{7}\right\}$ B) $\left\{\dfrac{5}{28}\right\}$ C) $\left\{-\dfrac{5}{28}\right\}$ D) $\left\{-\dfrac{28}{5}\right\}$

57) $9x + x = 90$

57) _____

A) {10}   B) {8}   C) {9}   D) $\left\{\dfrac{91}{9}\right\}$

58) $-6x + x = -50$

58) _____

A) {11}   B) {10}   C) {-11}   D) {-10}

59) $9x + 15x = 19$

59) _____

A) $\left\{\dfrac{24}{19}\right\}$ B) {-5}   C) $\left\{\dfrac{19}{24}\right\}$ D) {456}

Solve the equation.

60) $-y = -7$

60) _____

A) {0}   B) {-1}   C) {-7}   D) {7}

61) $-x = -15$

61) _____

A) {0}   B) {-1}   C) {15}   D) {-15}

Solve the equation using both the addition and multiplication properties of equality.

62) $9r + 3 = 48$

62) _____

A) {36}   B) {40}   C) {2}   D) {5}

63) $2n - 10 = 10$

63) _____

A) {10}   B) {15}   C) {22}   D) {18}

64) $-18 = -5x - 3$

64) _____

A) {-10}   B) {-6}   C) {3}   D) {6}

65) $47 = -4x + 7$

65) _____

A) {48}   B) {18}   C) {44}   D) {-10}

66) $-8x - 24 = -168$

66) _____

A) {24}   B) {-136}   C) {-18}   D) {18}

67) $-95 = -10x + 5$

67) _____

A) {10}   B) {-10}   C) {94}   D) {90}

68) $-2x = 35 + 5x$

68) _____

A) {-5}   B) {-4}   C) {5}   D) {42}

69) $8y + 40 = 3y$

69) _____

A) $\left\{\dfrac{40}{11}\right\}$ B) {8}   C) $\left\{-\dfrac{40}{11}\right\}$ D) {-8}

70) - 4y - 18 = -6y   70) _____

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

71) 7x - 7 = 5x + -1   71) _____

   A) {6}   B) {1}   C) {3}   D) {4}

72) 10y - 3 = -6 + 3y   72) _____

   A) $\left\{\dfrac{7}{3}\right\}$ B) $\left\{-\dfrac{3}{7}\right\}$ C) $\left\{-\dfrac{13}{9}\right\}$ D) $\left\{-\dfrac{7}{3}\right\}$

73) 3x - 6 = 84 - 7x   73) _____

   A) {- 9}   B) $\left\{-\dfrac{45}{2}\right\}$ C) {9}   D) $\left\{-\dfrac{39}{2}\right\}$

74) 5x - 6x - 5 = -7x   74) _____

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

Use the given information to write an equation. Let x represent the number described in the exercise. Then solve the equation and find the number.

75) The product of three-fourths and a number is six.   75) _____

   A) $\dfrac{3}{4}x = 6$; 8   B) $\dfrac{3}{4} - x = 6$; $\dfrac{-21}{4}$ C) $\dfrac{3}{4} = 6x$; $\dfrac{1}{8}$ D) $\dfrac{3}{4} + x = 6$; $\dfrac{21}{4}$

76) If thirty is divided by a number, the result is five.   76) _____

   A) $\dfrac{x}{30} = 5$; 150   B) $\dfrac{30}{5} = x$; 6   C) $\dfrac{30}{x} = 5$; 6   D) 30 - x = 5; 25

77) A number subtracted from eighteen is four.   77) _____

   A) 18 + x = 4; -14   B) x - 18 = 4; 22   C) 18 - 4 = x; 14   D) 18 - x = 4; 14

Solve the problem.

78)   78) _____

   The time it takes to travel a given distance at constant speed is given by the formula $t = \dfrac{d}{r}$, where t is the time, d is the distance, and r is the rate of travel. At 40 miles per hour, what distance can be traveled in 4 hours?

   A) 320 mi   B) 80 mi   C) 160 mi   D) 32 mi

79)   79) _____

   The time it takes to travel a given distance at constant speed is given by the formula $t = \dfrac{d}{r}$, where t is the time, d is the distance, and r is the rate of travel. At 0.9 mile per minute, what distance can be traveled in 20 minutes?

   A) 3.6 mi   B) 18 mi   C) 36 mi   D) 9 mi

80)   80) _____

   To convert meters to feet, you can use the formula $f = \dfrac{m}{0.3038}$, where f is the distance in feet and m is the distance in meters. How many meters (to the nearest tenth) is 4 feet?

   A) 1.2 m   B) 13.2 m   C) 1.3 m   D) 12.2 m

81) Power is the time rate of doing work and is commonly measured in watts. Power is given by the   81) _____

$$P = \frac{W}{t},$$

formula   where P is power, W is work (in joules), and t is time in seconds. If 600 watts of power are used in 20 seconds, how much work (in joules) was done?

    A) 1200 joules   B) 30 joules   C) 3 joules   D) 12,000 joules

82) The speed of a ball dropped from a tower is given by the formula f = 32t where f is in feet per   82)_____
second and t is the number of seconds since the ball was dropped. Find the speed of the ball after 5 seconds.

    A) 32 ft/sec   B) 160 ft/sec   C) 5 ft/sec   D) 150 ft/sec

83) The formula C = 502x + 103 models the data for the cost to produce x units of a product, where C   83)_____
is given in dollars. How many units can be produced for a cost of $451,903?

    A) 1800 units   B) 900 units   C) 675 units   D) 450 units

84) The weekly production cost C of manufacturing x calendars is given by $C = 28 + 2x$, where the   84) _____
variable C is in dollars. What is the cost of producing 233 calendars?

    A) $261.00   B) $466.00   C) $494.00   D) $6526.00

Solve the equation.

85) 9 - 2x = 4x - 3x + 3   85) _____
    A) $\{-3\}$ B) $\{-12\}$ C) {2}   D) $\{-1\}$

86) 3x - 8x - 10x = -6 - 39   86) _____
    A) {3}   B) $\left\{\frac{13}{5}\right\}$ C) $\left\{\frac{39}{5}\right\}$ D) $\left\{\frac{33}{5}\right\}$

87) - 7a + 4 + 8a = 13 - 30   87) _____
    A) {47}   B) {21}   C) {-21}   D) {-47}

88) - 7b + 4 + 5b = -3b + 9   88) _____
    A) {-4}   B) {-9}   C) {9}   D) {5}

89) 9x - 5 + 9x = 8x + 147 - 9x   89) _____
    A) {8}   B) {7}   C) {10}   D) {9}

90) - 4(x + 9) = -28   90) _____
    A) {-19}   B) {-2}   C) {16}   D) {-37}

91) 3(2x - 1) = 12   91) _____
    A) $\left\{\frac{5}{2}\right\}$ B) $\left\{\frac{11}{6}\right\}$ C) $\left\{\frac{3}{2}\right\}$ D) $\left\{\frac{13}{6}\right\}$

92) 9x - (8x + 2) = 4   92) _____
    A) {7}   B) {8}   C) {5}   D) {6}

93) 4(2t - 1) - 6 = 30   93) _____
    A) {7}   B) {5}   C) {6}   D) {4}

94) 8x - 5 = 9(x - 1)   94) _____
    A) {4}   B) {-14}   C) {-4}   D) {14}

95) 4(3x - 2) - 32 = 8x - 4

A) {-9}   B) {144}   C) {36}   D) {9}

95) _____

96) 3(y + 5) = 4(y - 2)

A) {7}   B) {-7}   C) {23}   D) {-23}

96) _____

97) 3(2z - 5) = 5(z + 2)

A) {5}   B) {25}   C) {-2}   D) {-5}

97) _____

98) 4x + 4 + 7(x + 1) = 7x + 6

A) $\left\{\dfrac{9}{4}\right\}$ B) $\left\{-\dfrac{5}{4}\right\}$ C) $\left\{\dfrac{3}{10}\right\}$ D) {7}

98) _____

99) 3(5x + 2) - 26 = 13x - 2

A) {36}   B) {9}   C) {18}   D) {-9}

99) _____

100) 3 - 8(y - 5) = 3 - 2y

A) $\left\{-\dfrac{5}{6}\right\}$ B) $\left\{-\dfrac{20}{3}\right\}$ C) $\left\{-\dfrac{23}{5}\right\}$ D) $\left\{\dfrac{20}{3}\right\}$

100) _____

101) 6(x + 1) + 15 = 3(x + 4) + 12

A) {12}   B) {9}   C) {15}   D) {1}

101) _____

102) 5 - 3(x + 5) = 6 - 4(x + 4)

A) {12}   B) {8}   C) {0}   D) {16}

102) _____

103) 17 - (2y - 2) = 2(y - 1) + 3y

A) $\left\{\dfrac{1}{3}\right\}$ B) ⟨7⟩   C) {3}   D) $\left\{\dfrac{16}{7}\right\}$

103) _____

104) 5x + 5(-3x - 7) = -43 - 2x

A) {1}   B) $\left\{\dfrac{39}{4}\right\}$ C) {- 1}   D) $\left\{\dfrac{13}{2}\right\}$

104) _____

105) $\dfrac{f}{6}$ - 5 = 1

A) {-24}   B) {36}   C) {24}   D) {-36}

105) _____

106) $\dfrac{a}{4}$ - $\dfrac{1}{4}$ = -3

A) {-13}   B) {-11}   C) {13}   D) {11}

106) _____

107) $\dfrac{2x}{5}$ - $\dfrac{x}{3}$ = 5

A) {-75}   B) {-150}   C) {150}   D) {75}

107) _____

108) $\dfrac{1}{4}$x - $\dfrac{3}{8}$x = 2

A) {-16}   B) {16}   C) {14}   D) {-14}

108) _____

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

   A) $\left\{\frac{15}{4}\right\}$ B) $\left\{-\frac{4}{5}\right\}$ C) $\left\{\frac{25}{4}\right\}$ D) $\left\{-\frac{5}{4}\right\}$

109) _____

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

   A) $\left\{\frac{40}{3}\right\}$ B) $\{10\}$ C) $\{8\}$ D) $\{20\}$

110) _____

111) $\frac{x}{10} = \frac{x}{3} + \frac{1}{10}$

   A) $\left\{-\frac{3}{7}\right\}$ B) $\left\{-\frac{7}{3}\right\}$ C) $\{0\}$ D) $\left\{-\frac{1}{10}\right\}$

111) _____

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

   A) $\left\{-\frac{17}{2}\right\}$ B) $\left\{-\frac{17}{3}\right\}$ C) $\left\{\frac{17}{3}\right\}$ D) $\left\{\frac{17}{2}\right\}$

112) _____

113) $\frac{3}{2}x + \frac{6}{5} = \frac{7}{5}x$

   A) $\{12\}$ B) $\{-12\}$ C) $\{-26\}$ D) $\{26\}$

113) _____

114) $\frac{x}{4} - 8 = \frac{x}{2} + 6$

   A) $\left\{-\frac{7}{2}\right\}$ B) $\{56\}$ C) $\left\{\frac{7}{2}\right\}$ D) $\{-56\}$

114) _____

115) $\frac{2x}{} + 3 = \frac{1}{2}$

   A) $\left\{\frac{3}{2}\right\}$ B) $\left\{\frac{1}{2}\right\}$ C) $\left\{-\frac{15}{4}\right\}$ D) $\left\{-\frac{17}{4}\right\}$

115) _____

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

   A) $\{-12\}$ B) $\{4\}$ C) $\{3\}$ D) $\{-4\}$

116) _____

117) $\frac{x+8}{6} + \frac{x-3}{5} = \frac{11}{10}$

   A) $\{0\}$ B) $\{1\}$ C) $\{14\}$ D) $\{33\}$

117) _____

118) $1.4x + 21.6 = 4.1x$

   A) $\{5.6\}$ B) $\{-24\}$ C) $\{5.3\}$ D) $\{8\}$

118) _____

119) $1.8 - 6.2x = -33.2 - 1.2x$

   A) $\{7\}$ B) $\{5.8\}$ C) $\{5.6\}$ D) $\{-40\}$

119) _____

120) $1.3x - 4.8 = 0.7x - 3.36$

120) _____

A) {2.376}   B) {-0.417}   C) {2.39}   D) {2.4}

121) 0.83x + 0.87(18 - x) = 15.3   121) _____
    A) {-0.09}   B) {9}   C) {-9}   D) {0.09}

122) 0.02y + 0.15(7000 - y) = 0.12y   122) _____
    A) {12,600}   B) {4200}   C) {262.5}   D) {2625}

123) 0.40x - 0.20(x + 40) = -0.05(40)   123) _____
    A) {40}   B) {15}   C) {30}   D) {20}

124) 0.31(x + 20) + 0.27(x + 15) = -10.05   124) _____
    A) {-35}   B) {5}   C) {-5}   D) {35}

Solve the equation. Use words or set notation to identify equations that have no solution, or equations that are true for all real numbers.

125) 5(x + 3) = 5x + 15   125) _____
    A) ∅   B) {0}
    C) {30}   D) {x|x is a real number}

126) 2(x + 7) = 2x - 28   126) _____
    A) {28}   B) {0}
    C) ∅   D) {x|x is a real number}

127) - 7x + 7 + 5x = -2x + 12   127) _____
    A) {5}   B) {x|x is a real number}
    C) {-7}   D) ∅

128) 5x - 8 + 5x - 7 = 6x + 4x - 18   128) _____
    A) {160}   B) ∅
    C) {x|x is a real number}   D) {0}

129) - 3(x - 5) - 69 = 4x - 7(x + 2)   129) _____
    A) ∅   B) {x|x is a real number}
    C) {-55}   D) {-83}

130) 12(x + 2) = 3(4x + 3) + 15   130) _____
    A) {24}   B) {0}
    C) ∅   D) {x|x is a real number}

131) 14(x + 1) = 23x + 23 - 9x - 9   131) _____
    A) ∅   B) {0}
    C) {x|x is a real number}   D) {1}

132) 19x + 2(x + 1) = 21(x + 1) - 19   132) _____
    A) {1}   B) {0}
    C) {x|x is a real number}   D) ∅

133) 6(x + 4) + 2 = 6x + 2   133) _____
    A) ∅   B) {24}
    C) {x|x is a real number}   D) {8}

134) $4(5x + 3) - 24 = 16x + 4$ 134) _____

    A) {x | x is a real number}   B) {-4}

    C) {4}   D) ∅

135) $\dfrac{x}{8} - 11 = \dfrac{x}{8}$ 135) _____

    A) {x | x is a real number}   B) {0}

    C) ∅   D) {44}

136) $\dfrac{1}{3}(6x - 9) = 6\left(\dfrac{1}{3}x - \dfrac{1}{2}\right) + 9$ 136) _____

    A) {0}   B) {x | x is a real number}

    C) $\left\{\dfrac{9}{4}\right\}$ D) ∅

137) $8x + 11 = 11 - x$ 137) _____

    A) {0}   B) ∅

    C) {x | x is a real number}   D) {44}

138) $\dfrac{2x}{5} - \dfrac{x}{3} + 5 = 5 + x$ 138) _____

    A) {75}   B) {0}

    C) {x | x is a real number}   D) ∅

139) $\dfrac{1}{4}x - \dfrac{3}{8}x = 5$ 139) _____

    A) {x | x is a real number}   B) ∅

    C) {40}   D) {-40}

Use the given information to write an equation. Let x represent the number described in the exercise. Then solve the equation and find the number.

140) Four times a number added to 7 times the number equals 33. Find the number.   140)_____

    A) $4x - 7x = 33$;   -4.7   B) $4x + 7x = 33$;   3

    C) $4(x + 7) = 33x$;   1   D) $4x(7 + x) = 33$;   4.7

141) When 5 times a number is subtracted from 7 times the number, the result is 18. Find the number.   141)_____

    A) $5(x - 7) = 18x$;   0.4   B) $5x + 9x = 18$;   2

    C) $7x - 5x = 18$;   9   D) $5x(7 - x) = 18$;   -9

142) If 5 times a number is added to -6, the result is equal to 11 times the number. Find the number.   142)_____

    A) $11(5x - 6) = -6$;   -1   B) $4x + (-6) = 11x$;   1

    C) $16x - 11x = 6$;   1   D) $5x + (-6) = 11x$;   -1

143) Three-fourths of a number is $\dfrac{7}{8}$. Find the number in lowest terms.   143) _____

    A) $\dfrac{3}{4}x = \dfrac{7}{8}$; $\dfrac{7}{6}$ B) $\dfrac{3}{4} + x = \dfrac{7}{8}$; $\dfrac{1}{7}$ C) $\dfrac{3}{4}x = \dfrac{7}{8}$; $\dfrac{28}{24}$ D) $\dfrac{3}{4}x = \dfrac{7}{8}$; $\dfrac{21}{32}$

144) The sum of four times a number and 6 is equal to the difference of twice the number and 7. Find the number.   144) _____

A)

$4x + 6 = 2x - 7;$ -

C)

$4x + 6 = 2x + 7;$ $\dfrac{1}{2}$ $\dfrac{13}{2}$

B)

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

D)

$4x + 6 = 2x - 7;$ $\dfrac{13}{2}$ $\dfrac{31}{2}$

Solve the problem.

145) Forensic scientists use the lengths of certain bones to calculate the height of a person. When the femur (the bone from the knee to the hip socket) is used, the following formula applies for men: $h = 69.09 + 2.24f,$ where h is the height and f is the length of the femur (both in centimeters). Find the height of a man with a femur measuring 57 centimeters.

145)_____

    A) 5.40 cm   B) 196.77 cm   C) 4065.81 cm   D) 126.09 cm

146) There is a formula that gives a correspondence between women's shoe sizes in the United States and those in Italy. The formula is $S = 2(x + 12),$ where S is the size in Italy and x is the size in the United States. What would be the US size for an Italian size of 40?

146)_____

    A) 8   B) 4   C) 16   D) 92

147) In one state, speeding fines are determined by the formula $F = 10(x - 60) + 100,$ 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 $390, how fast was the person driving?

147) _____

    A) 87 mph   B) 89 mph   C) 99 mph   D) 91 mph

148) To convert a Fahrenheit temperature to Celsius, one formula to use is $F = \dfrac{9}{5}C + 32,$ where F is the Fahrenheit temperature (in degrees) and C is the Celsius temperature. What is the Celsius temperature (to the nearest degree) when Fahrenheit temperature is 68°?

148) _____

    A) 20°   B) 129°   C) 154°   D) 34°

Solve the formula for the specified variable.

149) $A = \dfrac{1}{2}bh$ for b

149) _____

    A) $b = \dfrac{Ah}{2}$ B) $b = \dfrac{2A}{h}$ C) $b = \dfrac{A}{2h}$ D) $b = \dfrac{h}{2A}$

150) $S = 2\pi rh + 2\pi r^2$ for h

150) _____

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

151) $V = \dfrac{1}{3}Bh$ for h

151) _____

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

152) $P = s1 + s2 + s3$ for s3

152) _____

    A) $s3 = s1 + P - s2$ B) $s3 = P + s1 + s2$ C) $s3 = s1 + s2 - P$ D) $s3 = P - s1 - s2$

153) $F = \dfrac{9}{5}C + 32$ for C

153) _____

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

154) d = rt for t   154) _____

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

155) P = 2L + 2W   for L   155) _____

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

Solve the equation for y.

156) 3x + y = 9   156) _____

    A) y = 3x + 9   B) y = 3 - x   C) $$y = \frac{9 - x}{}$$ D) y = 9 - 3x

157) 18x + 7y = 19   157) _____

    A) y = 18x - 19   B) $$y = \frac{18 + 19x}{7}$$ C) $$y = \frac{19 - 18x}{}$$ D) $$y = \frac{19 + 18x}{7}$$

158) x = 5y + 9   158) _____

    A) $$y = x - \frac{9}{}$$ B) $$y = \frac{1}{}x - 9$$ C) y = 5x - 9   D) $$y = \frac{x - 9}{5}$$

159) - 5x + 10y = 0   159) _____

    A) y = - 2x   B) y = 2x + 5   C) y = 2x   D) $$y = \frac{x}{2}$$

Use the percent formula, A = PB: A is P percent of B, to solve.

160) What number is 7% of 80?   160) _____

    A) 5.6   B) 560   C) 56   D) 0.56

161) What number is 90% of 136?   161) _____

    A) 12.24   B) 12,240   C) 122.4   D) 1224

162) What number is 40% of 20?   162) _____

    A) 80   B) 8   C) 800   D) 0.8

163) 18% of what number is 3.6?   163) _____

    A) 0.2   B) 20   C) 64.8   D) 0.648

164) What percent of 20 is 0.6?   164) _____

    A) 1200%   B) 3%   C) 12%   D) 0.03%

165) 1212 is what percent of 303?   165) _____

    A) 0.4%   B) 25%   C) 4%   D) 400%

166) 29% of what number is 52.2?   166) _____

    A) 1.8   B) 180   C) 1800   D) 18

167) What percent of 2.5 is 0.2?   167) _____
     A) 8%   B) 4%   C) 0.8%   D) 80%

168) 71 is 50% of what number?   168) _____
     A) 1420   B) 14.2   C) 142   D) 35.5

169) 21 is 2% of what number?   169) _____
     A) 1050   B) 42   C) 105   D) 10,500

170) 50% of what number is 86?   170) _____
     A) 17.2   B) 1720   C) 43   D) 172

Solve the problem.

171) Jeans are on sale at the local department store for 15% off. If the jeans originally cost $65, find the   171)_____
     sale price. (Round to the nearest cent, if necessary.)
     A) $74.75   B) $55.25   C) $9.75   D) $64.03

172) Sales at a local ice cream shop went up 70% in 5 years. If 28,000 ice cream cones were sold in the   172)_____
     current year, find the number of ice cream cones sold 5 years ago. (Round to the nearest integer,
     if necessary.)
     A) 40,000 ice cream cones   B) 8400 ice cream cones
     C) 16,471 ice cream cones   D) 19,600 ice cream cones

173) Attendance this year at the homecoming football game is 162% of what it was last year. If last   173)_____
     year's homecoming football game attendance was 43,000, what is this year's attendance? (Round
     to the nearest integer, if necessary.)
     A) 265 people   B) 3767 people   C) 69,660 people   D) 696,600 people

174) Of the 90 students in an algebra class, 10 of them received an F on the mid-term exam. What   174)_____
     percent of the algebra students received an F on the exam? (Round to the nearest tenth of a
     percent, if necessary.)
     A) 11.1%   B) 9%   C) 111.1%   D) 90%

175) 14% of students at a university attended a lecture. If 2000 students are enrolled at the university,   175)_____
     about how many students attended the lecture?
     A) 280 students   B) 28 students   C) 2800 students   D) 28,000 students

The pie chart below shows the number of pizzas consumed by college students in a typical month. Use the chart to answer the question.

```
        No Pizzas          7 or more Pizzas
          2%                     5%

                        5-6 Pizzas
                          18%
        3-4 Pizzas
          34%


                    1-2 Pizzas
                      41%
```
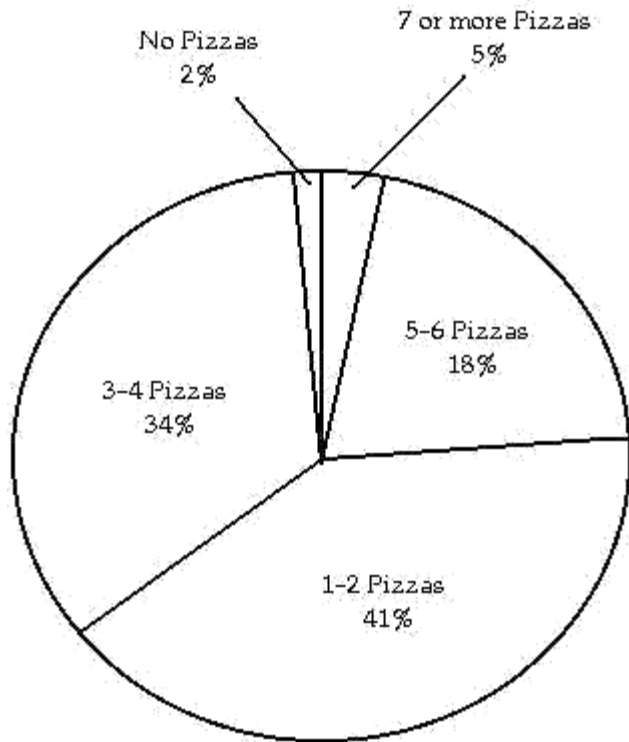
176) What percent of college students consume 1-2 pizzas in a typical month?   176) _____
    A) 41%   B) 18%   C) 2%   D) 34%

177) What percent of college students consume no pizzas in a typical month?   177) _____
    A) 34%   B) 18%   C) 2%   D) 5%

178) What percent of college students consume 3 or more pizzas in a typical month?   178)_____
    A) 34%   B) 57%   C) 98%   D) 52%

179) What percent of college students consume 4 pizzas or less in a typical month?   179)_____
    A) 43%   B) 77%   C) 82%   D) 75%

180) If State University has approximately 24,000 students, about how many would you expect to   180)_____
    consume 5-6 pizzas in a typical month?
    A) 4320 students   B) 8160 students   C) 816 students   D) 432 students

Solve the problem.
181) Due to a lack of funding, the number of students enrolled at City College went from 7000 last   181)_____
    year to 3000 this year. Find the percent decrease in enrollment. (Round to the nearest tenth of a
    percent, if necessary.)
    A) 57.1%   B) 42.9%   C) 133.3%   D) 233.3%

182) If 8 is increased to 11, the increase is what percent of the original number?   182) _____
    A) 0.00375%   B) 0.375%   C) 37.5%   D) 3.75%

183) If 5 is decreased to 0, the decrease is what percent of the original number?   183) _____
    A) 10%   B) 100%   C) 1%   D) 0.01%

Let x represent the number. Write the English phrase as an algebraic expression.

184) The product of 8 and a number, added to 13. 184) _____
 A) 104x B) 13 + 8x C) 8 + 13x D) 104 + x

185) Five times a number, decreased by 37. 185) _____
 A) 5x - 37 B) 5(x - 37) C) 5x + 37 D) 5(x + 37)

186) The quotient of 21 and the product of a number and -10. 186) _____
 A) $\dfrac{-10x}{21}$ B) $\dfrac{21}{-10x}$ C) $\dfrac{21}{x}$ - 10 D) - 210x

187) The product of -20 and the sum of a number and 15. 187) _____
 A) - 300x B) - 20 + 15x C) - 20x + 15 D) - 20(x + 15)

188) Four times the sum of a number and -11. 188) _____
 A) 4x + (-11) B) 4x - (-11) C) 4+ x + (-11) D) 4(x + (-11))

189) The quotient of 35 times a number and -6. 189) _____
 A) $\dfrac{35x}{-6}$ B) 35x + 6 C) $\dfrac{1}{-210x}$ D) 35x - 6

190) Ten times a number decreased by double the same number. 190) _____
 A) 10x - 2 B) 10x - 2x C) 2x - 10x D) 10(x - 2)

Let x represent the number. Use the given conditions to write an equation. Solve the equation and find the number.

191) Four times a number added to 9 times the number equals 39. Find the number. 191) _____
 A) 4x + 9x = 39; 3 B) 4x(9 + x) = 39; 4.3
 C) 4x - 9x = 39; -4.3 D) 4(x + 9) = 39x; 1

192) When 3 times a number is subtracted from 7 times the number, the result is 44. Find the number. 192) _____
 A) 7x - 3x = 44; 11 B) 3x(7 - x) = 44; -11
 C) 3(x - 7) = 44x; 2 D) 3x + 11x = 44; 4

193) If 5 times a number is added to -8, the result is equal to 13 times the number. Find the number. 193) _____
 A) 4x + (-8) = 13x; 1 B) 5x + (-8) = 13x; -1
 C) 18x - 13x = 8; 1 D) 13(5x - 8) = -8; -1

194) 194) _____

 Three-fourths of a number is $\dfrac{3}{16}$. Find the number in lowest terms.
 A) $\dfrac{3}{4}$ x =; $\dfrac{3}{16}$ $\dfrac{1}{4}$ B) $\dfrac{3}{4}$ + x =; $\dfrac{3}{16}$ - 3 C) $\dfrac{3}{4}$ x = $\dfrac{3}{16}$; $\dfrac{12}{48}$ D) $\dfrac{3}{4}$ x =; $\dfrac{3}{16}$ $\dfrac{9}{64}$

195) The sum of four times a number and 7 is equal to the difference of twice the number and 5. Find the number. 195) _____
 A) 4x + 7 = 2x + 5; - 1 B) 4(x + 7) = 2x - 5; - $\dfrac{33}{2}$
 C) 4x + 7 = 2x - 5; 6 D) 4x + 7 = 2x - 5; - 6

Solve the problem.

196) 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 $180,000, find each worker's salary. 196) _____
 A) president's salary = $90,000; department head's salary = $45,000

B) president's salary = $135,000; department head's salary = $45,000
C) president's salary = $13,500; department head's salary = $4500
D) president's salary = $45,000; department head's salary = $135,000

197) 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 = 14 marbles; 3rd bag = 10 marbles
   B) 1st bag = 5 marbles; 2nd bag = 10 marbles; 3rd bag = 15 marbles
   C) 1st bag = 6 marbles; 2nd bag = 18 marbles; 3rd bag = 12 marbles
   D) 1st bag = 5 marbles; 2nd bag = 15 marbles; 3rd bag = 10 marbles

197)_____

198) 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 $68 under this promotional deal, how many minutes of phone calls did he make? Round to the nearest integer, if necessary.
   A) 3 minutes   B) 11 minutes   C) 1060 minutes   D) 1660 minutes

198)_____

199) Two angles are complementary if their sum is 90°. If the measure of the first angle is x°, and the measure of the second angle is (3x - 2)°, find the measure of each angle.
   A) 1st angle = 31°; 2nd angle = 59°   B) 1st angle = 22°; 2nd angle = 68°
   C) 1st angle = 23°; 2nd angle = 67°   D) 1st angle = 22°; 2nd angle = 64°

199)_____

200) Rooms in Dormitory A each have 136 square feet of floor space. These rooms have twice as much floor space as each room in Dormitory B. About how much floor space does a room in Dormitory B have?
   A) 272 sq. feet   B) 134 sq. feet   C) 68 sq. feet   D) 138 sq. feet

200)_____

201) An isosceles triangle contains two angles of the same measure. If the measure of the third angle is 57° less than the measure of either of the other two identical angles, find the measure of one of the identical angles. (Hint: The sum of the angles of a triangle is 180°.)
   A) 59°   B) 79°   C) 22°   D) 118.5°

201)_____

202) There are 16 more sophomores than juniors in an algebra class. If there are 88 students in this class, find the number of sophomores and the number of juniors in the class.
   A) 36 sophomores; 52 juniors   B) 88 sophomores; 72 juniors
   C) 52 sophomores; 36 juniors   D) 104 sophomores; 72 juniors

202)_____

203) A car rental agency advertised renting a luxury, full-size car for $34.95 per day and $0.19 per mile. If you rent this car for 3 days, how many whole miles can you drive if you only have $200 to spend?
   A) 66 miles   B) 10 miles   C) 500 miles   D) 852 miles

203)_____

204) A 7-ft. board is cut into 2 pieces so that one piece is 3 feet longer than 3 times the shorter piece. If the shorter piece is x feet long, find the lengths of both pieces.
   A) shorter piece: 1 ft.; longer piece: 6 ft.   B) shorter piece: 9 ft; longer piece: 24 ft.
   C) shorter piece: 18 ft; longer piece: 21 ft.   D) shorter piece: 3.5 ft; longer piece: 21 ft.

204)_____

Use a formula for perimeter or area to solve the problem.

205) Find the perimeter of

10 mi

5 mi | Rectangle | 5
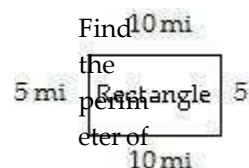
10 mi

the figure.

A) 20 mi   B) 10 mi   C) 30 mi   D) 15 mi

206)

6.8 cm

6.8 cm | Square | 6.8 cm

6.8 cm
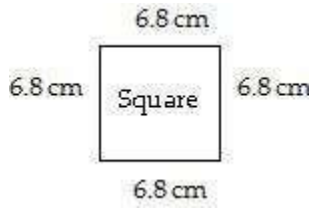
Find the perimeter of the figure.

A) 92.48 cm   B) 13.6 cm   C) 37.2 cm   D) 27.2 cm

206) _____

207)

11 ft

6 ft

13 ft
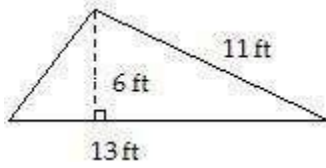
Find the area of the triangle.

A) $78 \ ft^2$ B) $39 \ ft^2$ C) $71.5 \ ft^2$ D) $33 \ ft^2$

207) _____

208)

19.5 ft

7.5 ft

18 ft
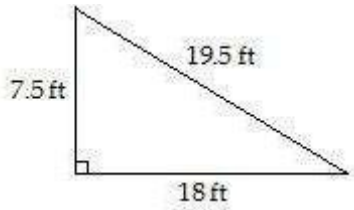
Find the area of the triangle.

A) $45 \ ft^2$ B) $67.5 \ ft^2$ C) $135 \ ft^2$ D) $73.125 \ ft^2$

208) _____

209)

0.1 mi
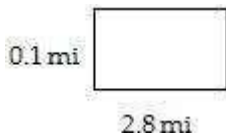
2.8 mi

Find the area of the rectangle.

A) $2.8 \ mi^2$ B) $2.9 \ mi^2$ C) $5.8 \ mi^2$ D) $0.28 \ mi^2$

209) _____

210)

6 units

Find the area of the trapezoid.

8.9 uni

10 uni
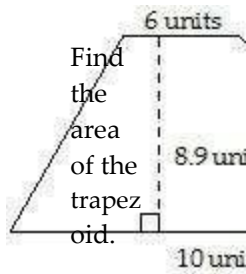
210)

A) 71.2 units^2 B) 142.4 units^2 C) 89 units^2 D) 53.4 units^2

211)
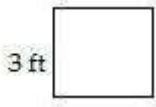
Find the area of the square.

A) 6 ft^2 B) 7 ft^2 C) 12 ft^2 D) 9 ft^2

212)
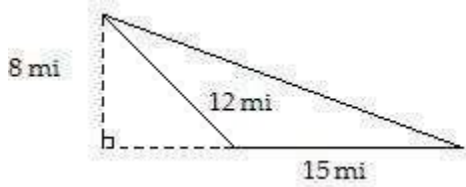
Find the area of the triangle.

A) 60 mi^2 B) 48 mi^2 C) 76 mi^2 D) 120 mi^2

213) The length of a rectangle is 96 in. and the width is 33 in. Find its perimeter.   213)_____

    A) 225 in.   B) 3168 in.   C) 258 in.   D) 129 in.

214) The width of a room is 8 feet, and the area of the room is 96 square feet. Find the room's length.   214) _____

    A) 768 feet   B) 40 feet   C) 12 feet   D) 88 feet

Solve.

215) To trim the edges of a rectangular table cloth, 66 feet of lace are needed. The length of the table   215)_____

cloth is exactly one-half its width. What are the dimensions of the table cloth?

    A) length: 22 feet; width: 44 feet   B) length: 11 feet; width: 22 feet

    C) $\frac{1}{2}$ D) length: 22 feet; width: 11 feet

    length: 5 feet; width: 11 feet

216) A rectangular carpet has a perimeter of 164 inches. The length of the carpet is 62 inches more   216)_____

than the width. What are the dimensions of the carpet?

    A) 72 by 10 inches   B) 72 by 82 inches   C) 77 by 82 inches   D) 46 by 56 inches

217) The length of a rectangular room is 7 feet longer than twice the width.   If the room's perimeter is   217)_____

134 feet, what are the room's dimensions?

    A) Width = 25 ft; length = 57 ft   B) Width = 40 ft; length = 94 ft

    C) Width = 30 ft; length = 37 ft   D) Width = 20 ft; length = 47 ft

218)

218)

6 ft

12 ft   12 ft

10 ft
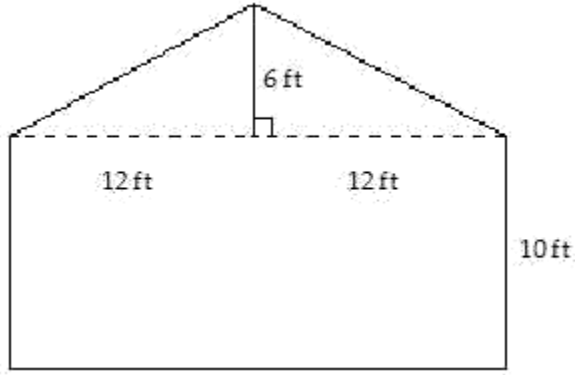
The drawing shows the end of a building that is to be bricked. If the area of the side of a brick used is $\frac{1}{8}$ sq. ft, find the number of bricks needed to completely cover the side of the building.

A) 312 bricks   B) 39 bricks   C) 2496 bricks   D) 3072 bricks

219)
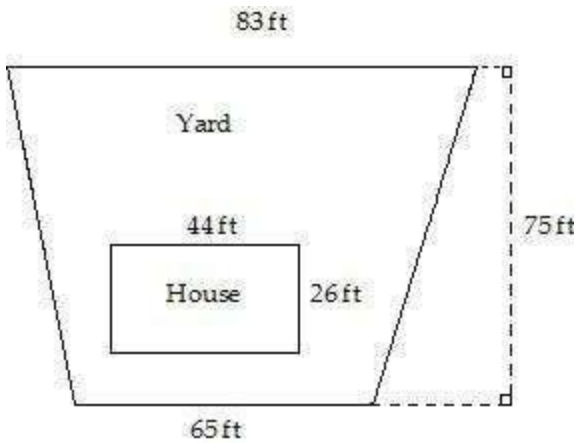
83 ft

Yard

44 ft   75 ft

House   26 ft

65 ft

A homeowner wants to know how much grass seed to buy. First the size of the yard must be determined. Use the

drawing
to
determin
e how
many
square
feet are
in the
yard.

219) _____

A) 5081 ft^2 B) 9956 ft^2 C) 5550 ft^2 D) 4406 ft^2

Use the formula for the area or circumference of a circle to solve the problem. Where applicable, express answers in terms of π.

220)

220) _____

3 mi
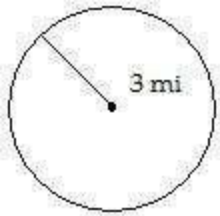
Find the area of the circle.

A) $9\pi \text{ mi}^2$ B) $7\pi \text{ mi}^2$ C) $12\pi \text{ mi}^2$ D) $6\pi \text{ mi}^2$

221)

221) _____
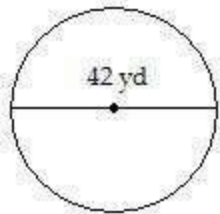
42 yd

Give the exact circumference.

A) 1764π yd B) 21π yd C) 84π yd D) 42π yd

222)

222) _____

92 m

Give the exact circumference.

A) 92π m B) 8464π m C) 46π m D) 184π m

223) The circumference of a circle is 18π meters. Find the circle's radius.

223) _____

A) 18 m B) 9 m C) 9π m D) π m

224) The circumference of a circle is 18π meters. Find the circle's diameter.

224) _____

A) π m B) 18 m C) 9π m D) 9 m

Solve.

225) Which one of the following is a better buy: a 10-inch pizza for $11 or two 6-inch pizzas for $10.   225) _____
    A) two 6-in. pizzas   B) 10-in. pizza   C) equivalent buys

226) Find the area of the skating rink. Use $\pi = 3.14$ and round to the nearest tenth.   226) _____
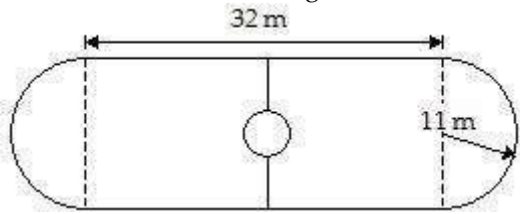
    A) 1083.9 sq. m   B) 1111.9 sq. m   C) 1463.9 sq. m   D) 731.9 sq. m

227) Find the area of the window. Use $\pi = 3.14$ and round to the nearest tenth.   227) _____
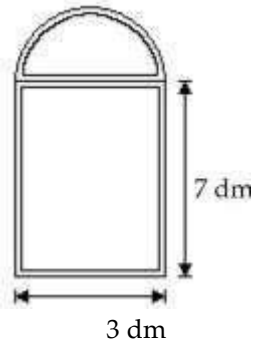
    A) 24.5 sq. dm   B) 35.1 sq. dm   C) 49.3 sq. dm   D) 22.2 sq. dm

228) The rectangular part of the field shown below is 187 yd long and the diameter of each semicircle   228)_____
is 14 yd. Find the cost of fertilizing the field at $0.25 per square yard. Use $\pi = 3.14$ and round to
the nearest cent.
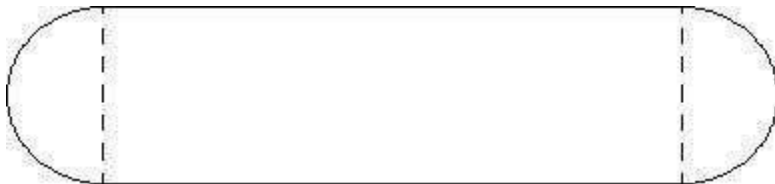
    A) $692.97   B) $365.72   C) $808.36   D) $660.00

Find the volume of the figure. Where applicable, express answers in terms of π.

229)   229) _____
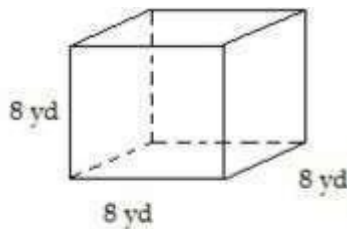
    A) 512 yd³   B) 64 yd³   C) 24 yd³   D) 128 yd³

230)

230)
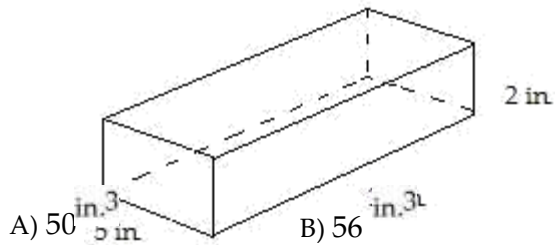
2 in

A) 50 in.³ 5 in   B) 56 in.³ᴸ   C) 980 in.³   D) 140 in.³

231)   231) _____
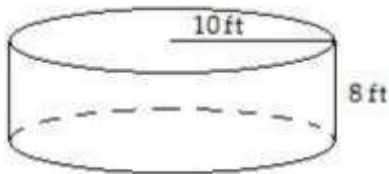
10 ft

8 ft

A) 800π ft³   B) 80π ft³   C) 100π ft³   D) 800 ft³

232)   232) _____

15 cm

A) 4500π cm³   B) 3375π cm³   C) 500π cm³   D) 13,500π cm³

233)   233) _____

9 m

8 m
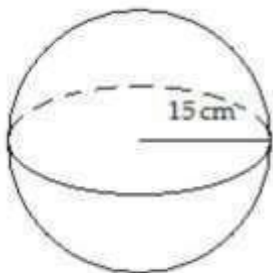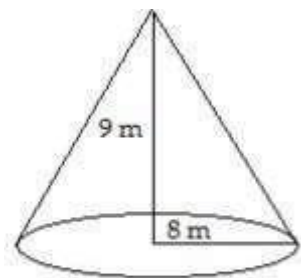
A) 72π m³   B) 192π m³   C) 576π m³   D) 24π m³

Solve.

234) A water reservoir is shaped like a rectangular solid with a base that is 5 meters by 4 meters, and   234)_____
a vertical height of 3 meters. How much water is in the reservoir if it is completely full?

A) 75 m³   B) 80 m³   C) 60 m³   D) 36 m³

235) Find the volume of an aluminum can that has a radius of 3.5 centimeters and a height of 12   centi meters

. Use π = 3.14 and round to the nearest tenth.

235) –

A) 263.8 cm^3 B) 1846.3 cm^3 C) 131.9 cm^3 D) 461.6 cm^3

236) The outside of a water storage tank is in the shape of a sphere. If the radius is 21.9 feet, approximate the volume of the tank in cubic feet. Use π = 3.14 and round to the nearest hundredth, if necessary.

236) _____

A) 1505.98   B) 32,980.86   C) 2007.97   D) 43,974.48

Use the relationship among the three angles of any triangle to solve the problem.

237) Two angles of a triangle are 10° and 60°. Find the third angle.

237) _____

A) 110°   B) 20°   C) 290°   D) 70°

238) Two angles of a triangle are 40° and 66°. Find the third angle.

238) _____

A) 254°   B) 74°   C) 106°   D) 16°

239) One of the base angles of an isosceles triangle is 32°. Find the measures of the other two angles. (An isosceles triangle has two equal base angles.)

239) _____

A) 32°, 64°   B) 32°, 296°   C) 32°, 116°   D) 32°, 26°

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

240) _____

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

241) A triangle has angles of (4x)°, (3x + 5)°, and (2x + 4)°. Find the measure of each angle.

241) _____

A) 42°, 57°, 76°   B) 19°, 42°, 76°   C) 42°, 62°, 76°   D) 19°, 62°, 76°

Find the measure of the indicated angle.

242) Find the measure of the complement of 48°.

242) _____

A) 42°   B) 222°   C) 132°   D) 312°

243) Find the measure of the supplement of 39°.

243) _____

A) 231°   B) 51°   C) 321°   D) 141°

244) Find the measure of the supplement of 111°.

244) _____

A) 159°   B) not possible   C) 249°   D) 69°

245) The angle's measure is 60° more than that of its complement.

245) _____

A) 75°   B) 120°   C) 60°   D) 15°

246) The angle's measure is 40° more than that of its supplement.

246) _____

A) 70°   B) 65°   C) 25°   D) 110°

247) The angle's measure is 80° more than triple that of its supplement.

247) _____

A) 70°   B) 115°   C) 155°   D) 110°

Graph the solution of the inequality on a number line.

248) x > -2

248) _____
_
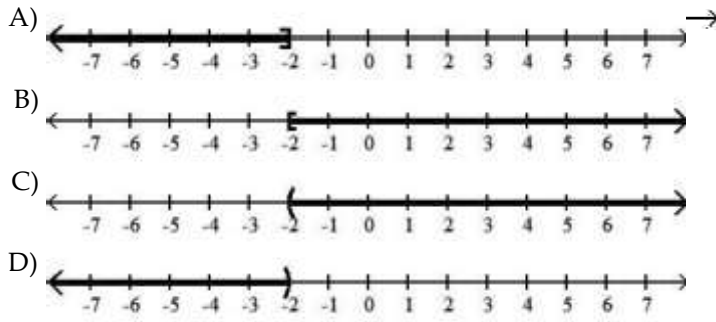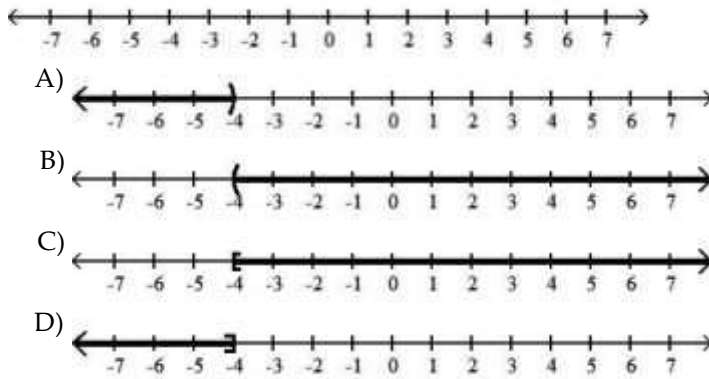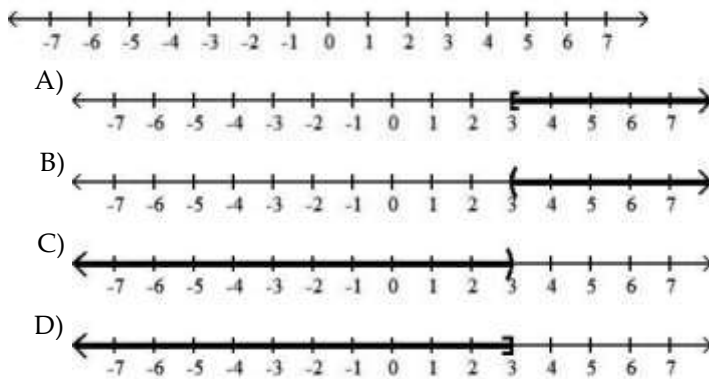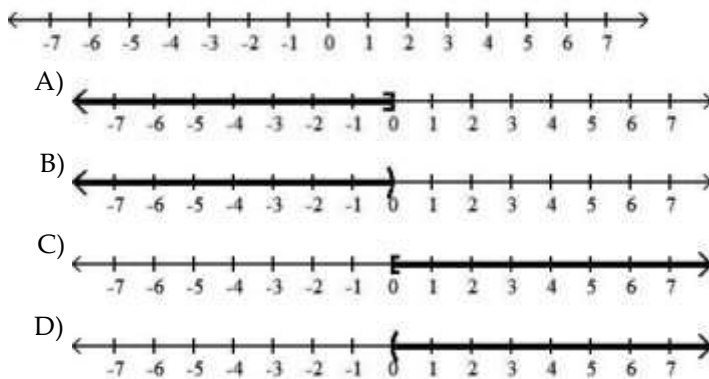
A)

B)

C)

D)

249) x < -4   249) _____

A)

B)

C)

D)

250) x ≥ 3   250) _____

A)

B)

C)

D)

251) x ≤ 0   251) _____

A)

B)

C)

D)

252) $-4 \le x \le 0$ 252) _____

A)

B)

C)

D)

253) $-3 < x < 1$ 253) _____

A)

B)

C)

D)

254) $-5 \le x < -1$ 254) _____

A)

B)

C)

D)
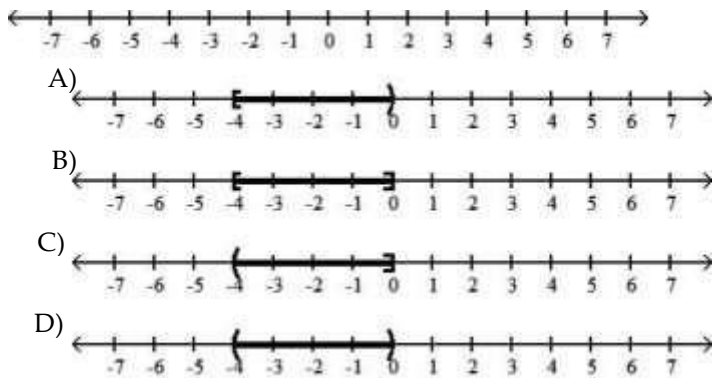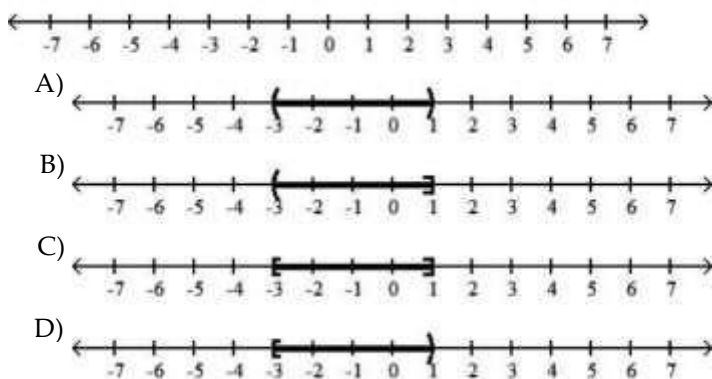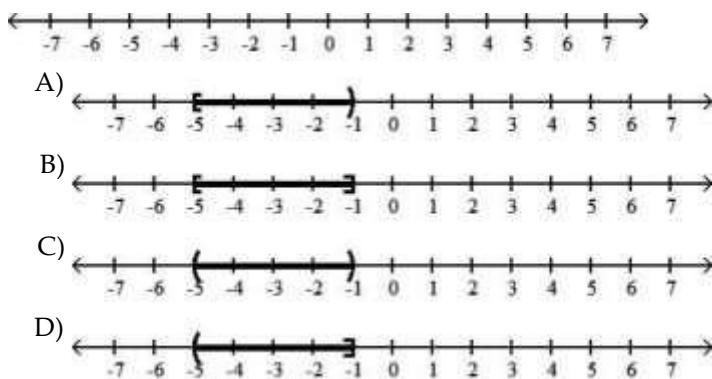
Express the solution set of the inequality in interval notation.

255) $x \ge 5$ 255) _____
   A) $(-\infty, 5)$ B) $(5, \infty)$ C) $[5, \infty)$ D) $(-\infty, 5]$

256) $x > 12$ 256) _____
   A) $(-\infty, 12]$ B) $[12, \infty)$ C) $(12, \infty)$ D) $(-\infty, 12)$

257) $x > -3$ 257) _____
   A) $(-\infty, -3)$ B) $(-3, \infty)$ C) $(-\infty, -3]$ D) $[-3, \infty)$

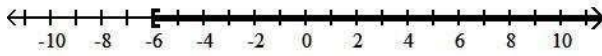258) $x \ge -21$ 258) _____

A) [- 21, ∞)   B) (-∞, - 21)   C) (-∞, - 21]   D) (- 21, ∞)

259) x < 4   259) _____

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

260) x ≤ 22   260) _____

    A) (-∞, 22]   B) (22, ∞)   C) (-∞, 22)   D) [22, ∞)

261) x ≤ - 7   261) _____

    A) (- 7, ∞)   B) [- 7, ∞)   C) (-∞, - 7]   D) (-∞, - 7)

262) x < - 10   262) _____

    A) (- 10, ∞)   B) (-∞, - 10)   C) (-∞, - 10]   D) [- 10, ∞)

263) $x < \dfrac{5}{7}$ 263) _____

    A) $\left[-\infty, \dfrac{5}{7}\right]$ B) $\left(\dfrac{5}{7}, \infty\right)$ C) $\left[\dfrac{5}{7}, \infty\right)$ D) $\left(-\infty, \dfrac{5}{7}\right)$

264) $x \geq \dfrac{7}{3}$ 264) _____

    A) $\left[-\infty, \dfrac{7}{3}\right]$ B) $\left[\dfrac{7}{3}, \infty\right)$ C) $\left(-\infty, \dfrac{7}{3}\right]$ D) $\left(\dfrac{7}{3}, \infty\right)$

Use the addition property of inequality to solve the inequality and graph the solution set on a number line.

265) x + 6 ≤ 4   265) _____
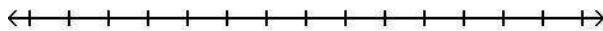
A) (-∞, -2]
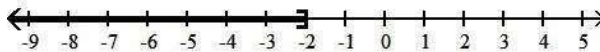
B) [-2, ∞)
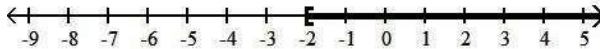
C) (-∞, -2)
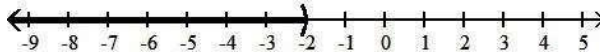
D) (-∞, 10)
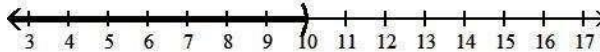
266) x + 5 ≥ 6   266) _____
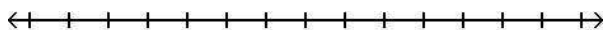
A) (1, ∞)
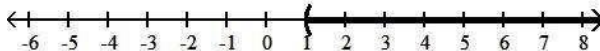
B) (-∞, 11)
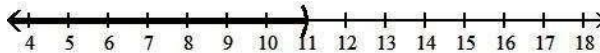
C) [1, ∞)

D) (-∞, 1]

267) x + 5 < 1

A) (-∞, -4)

B) (-4, ∞)

C) (-∞, 6]

D) (-∞, 6)

267) _____

268) 8 - x > -5

A) (-∞, -13)

B) (13, ∞)

C) (-13, ∞)

D) (-∞, 13)

268) _____

269) 7x + 7 > 6x + 4

A) (-3, ∞)

B) (11, ∞)

C) (-∞, -3]

269) _____
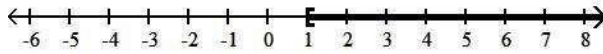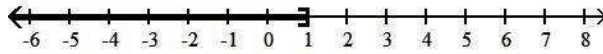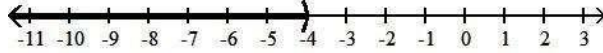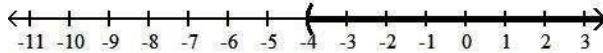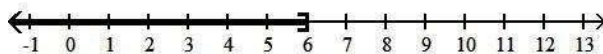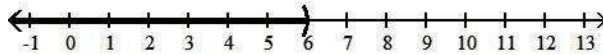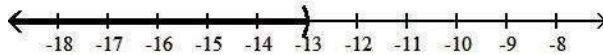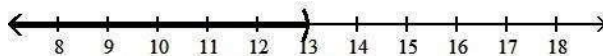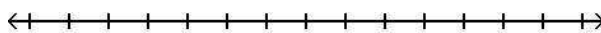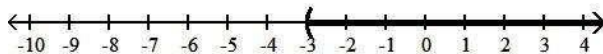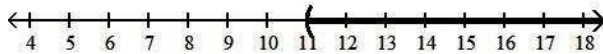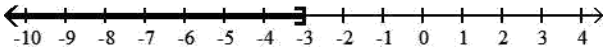
D) [-3, ∞)
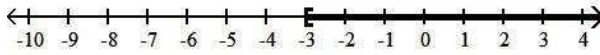
270) 5x - 7 ≥ 4x - 8

270) _____
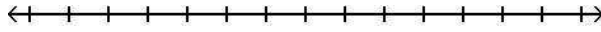
A) [-1, ∞)
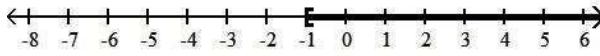
B) (-15, ∞)
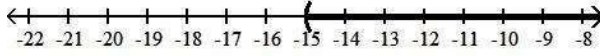
C) (-∞, -1]
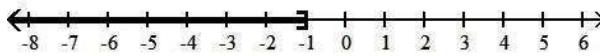
D) (-1, ∞)
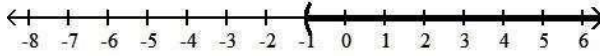
271) 4x + 5 > 3x - 7

271) _____
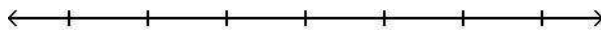
A) (-12, ∞)
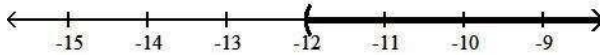
B) [-2, ∞)
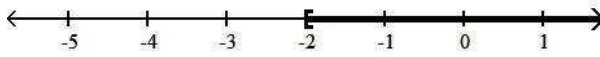
C) (-∞, -12)
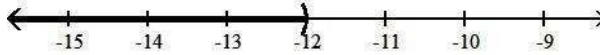
D) (-∞, -2]
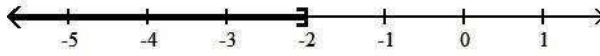
272) - 5x - 1 ≤ -6x + 4

272) _____
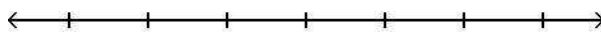
A) [5,∞)
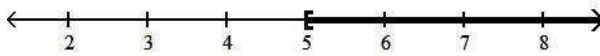
B) (-∞, -5)

C) (-∞, 5]
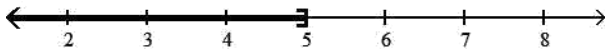
D) (-5 , ∞)
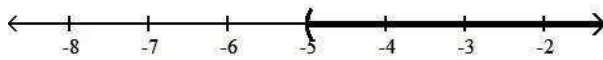
273) $x - \dfrac{5}{21} > - \dfrac{20}{21}$

273) _____

A) $\left[-\infty , -\dfrac{5}{7} \right)$
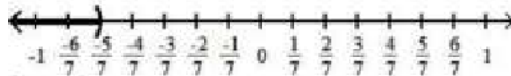
B) $\left[-\infty , \dfrac{5}{7} \right)$
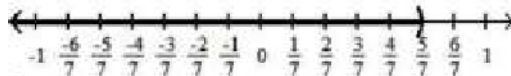
C) $\left[\dfrac{5}{7} , \infty \right)$
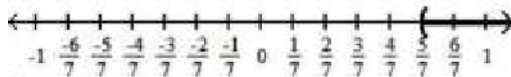
D) $\left[-\dfrac{5}{7} , \infty \right)$
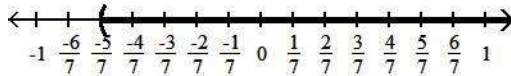
Use the multiplication property of inequality to solve the inequality and graph the solution set on a number line.

274) $\dfrac{x}{3} \geq 7$

274) _____
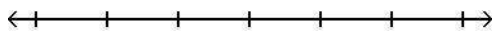
A) (21, ∞)

B) (-∞, 21]
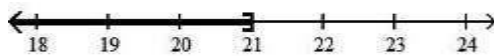
C) [21, ∞)
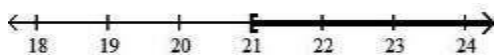
D) (-∞, 21)
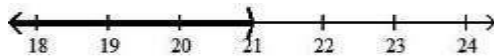
275) $\dfrac{y}{} \le -4$

275) _____
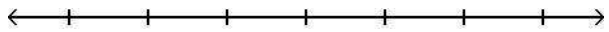
A) $(-\infty, -8)$
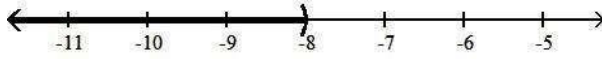
B) $[-8, \infty)$
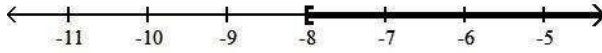
C) $(-8, \infty)$

D) $(-\infty, -8]$
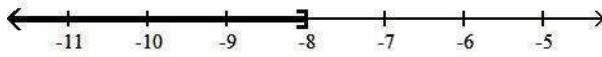
276) $\dfrac{x}{5} > 2$

276) _____
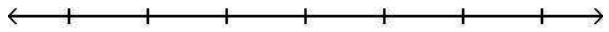
A) $(-\infty, 10)$
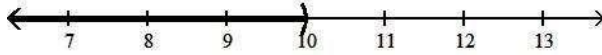
B) $(-\infty, 10]$
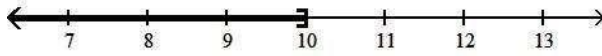
C) $[10, \infty)$
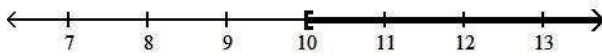
D) $(10, \infty)$
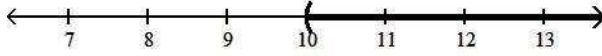
277) $9x \ge -18$

277) _____

A) $(-\infty, -2]$
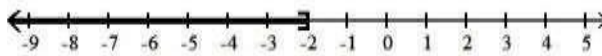
B) $[-2, \infty)$
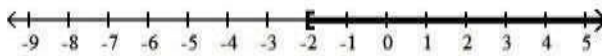
C) $(-\infty, 2)$

D) $(2, \infty)$

278) 7x < 21

   A) (-∞, 3)

   B) [3, ∞)

   C) (3, ∞)

   D) (-∞, 3]

278) _____

279) - 2x > 26

   A) (-∞, 13)

   B) (-13, ∞)

   C) (13, ∞)

   D) (-∞, -13)

279) _____

280) $-2x < \dfrac{3}{7}$

   A) $\left[\dfrac{5}{7}, \infty\right)$

   B) $\left[-\infty, \dfrac{3}{14}\right)$

280) _____

$$-\frac{5}{14} \quad -\frac{2}{7} \quad -\frac{3}{14} \quad -\frac{1}{7} \quad -\frac{1}{14} \quad 0 \quad \frac{1}{14} \quad \frac{1}{7} \quad \frac{3}{14} \quad \frac{2}{7} \quad \frac{5}{14}$$

C) $\left(-\infty, \dfrac{5}{7}\right]$

$$-\frac{5}{7} \quad -\frac{4}{7} \quad -\frac{3}{7} \quad -\frac{2}{7} \quad -\frac{1}{7} \quad 0 \quad \frac{1}{7} \quad \frac{2}{7} \quad \frac{3}{7} \quad \frac{4}{7} \quad \frac{5}{7}$$
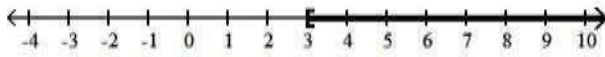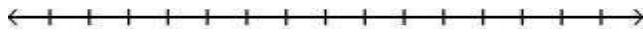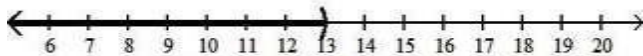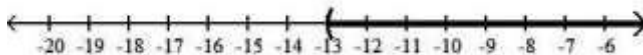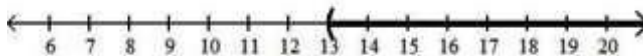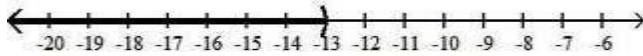
D) $\left[-\dfrac{3}{14}, \infty\right)$
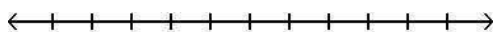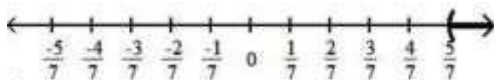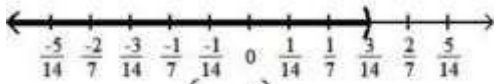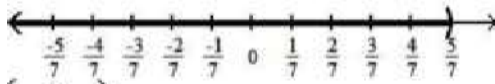
$$-\frac{5}{14} \quad -\frac{2}{7} \quad -\frac{3}{14} \quad -\frac{1}{7} \quad -\frac{1}{14} \quad 0 \quad \frac{1}{14} \quad \frac{1}{7} \quad \frac{3}{14} \quad \frac{2}{7} \quad \frac{5}{14}$$
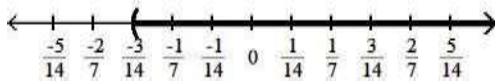
Use both the addition and multiplication properties of inequality to solve the inequality. Graph the solution set on a number line.

281) $4x + 8 < 20$ 281) _____
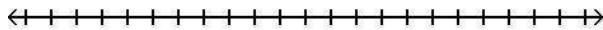
A) $[3, \infty)$
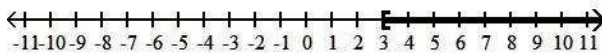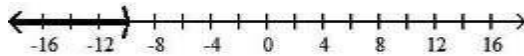

B) $(3, \infty)$
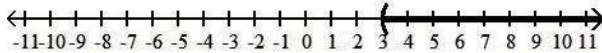
C) $(-\infty, 3]$
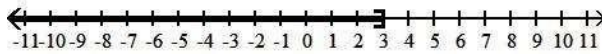
D) $(-\infty, 3)$
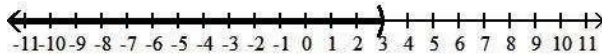
282) $4x - 8 \geq 16$ 282) _____

A) $[2, \infty)$
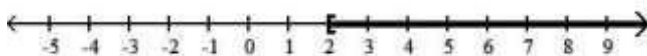
B) $(-\infty, 2]$

C) $[6, \infty)$

D) $(-\infty, 6]$

283) $8 - 4x \geq -24$

283)

A) [8, ∞)

B) (-∞, 4]

C) (-∞, 8]

D) [4, ∞)
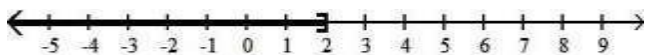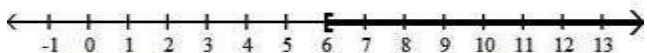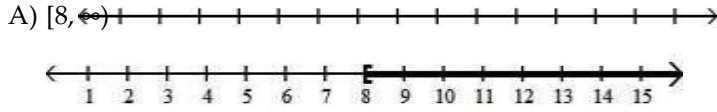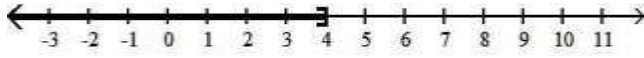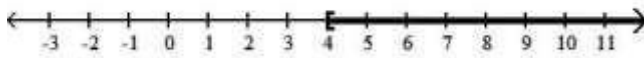
284) 5 - 3(1 - x) ≤ -16
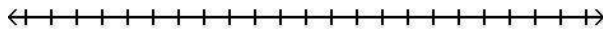
A) (-∞, -5]
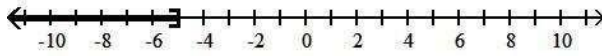
B) (-∞, -6)

C) [-6, ∞)

D) (-∞, -6]
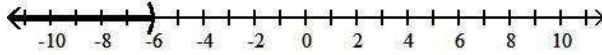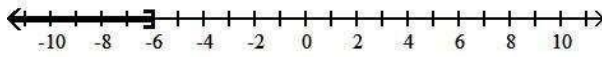
285) 8x - 7 ≤ 3x - 14
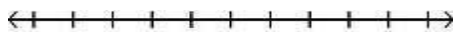
A) (-∞, 5]
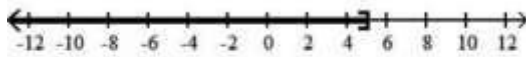
B) $\left[-\infty, -\frac{7}{5}\right]$
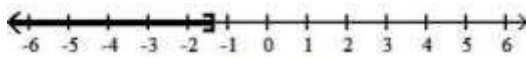
C) [-7, ∞)
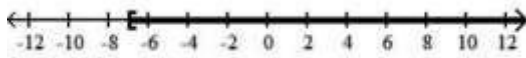
D) $\left[-\infty, -\frac{7}{5}\right)$
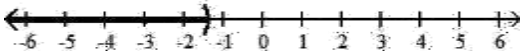
286) $4x + 9 \geq 2x + 3$ 286) _____
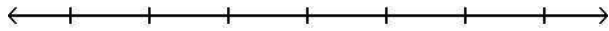
   A) $[-3, \infty)$

   B) $[3, \infty)$

   C) $(-\infty, -3]$
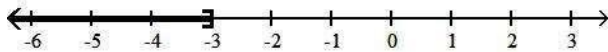
   D) $(-\infty, 3]$

287) $5x + 6 < 6(x - 4)$ 287) _____

   A) $(30, \infty)$
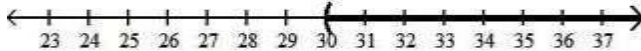
   B) $(-18, \infty)$
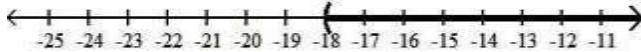
   C) $(-\infty, 18)$
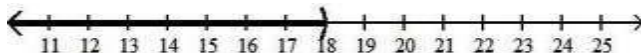
   D) $(-\infty, -30)$
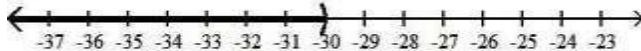
288) $15x - 20 > 5(2x - 7)$ 288) _____
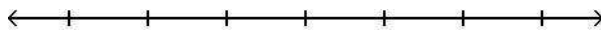
   A) $[-3, \infty)$
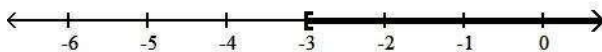
   B) $(-\infty, -3)$
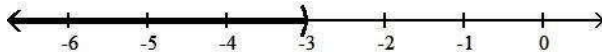
   C) $(-\infty, -3]$
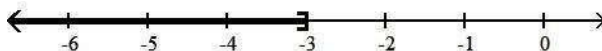
   D) $(-3, \infty)$

289) - 4(5x - 12) < -24x + 16

289) _____
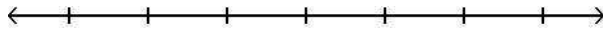
A) (-8, ∞)

B) (-∞, -8]
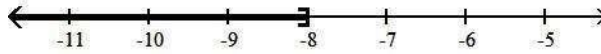
C) [-8, ∞)
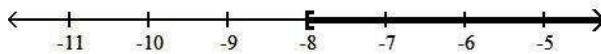
D) (-∞, -8)
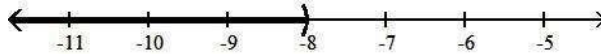
290) - 2x + 8 + 9x < 8 + 5x + 2

290) _____
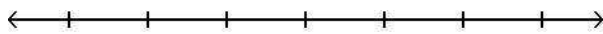
A) (9, ∞)
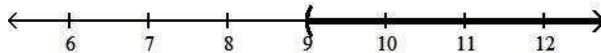
B) (1, ∞)
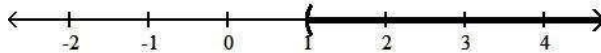
C) (-∞, 1)
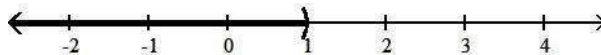
D) (-∞, 9)
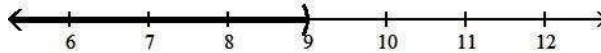
291) $\frac{x}{2}$ + 14≤8

291) _____
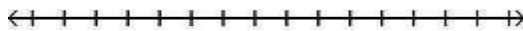
A) (-∞, -10)

B) [-12, ∞)

C) (-∞, -12]
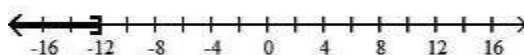
D) (-∞, 8]
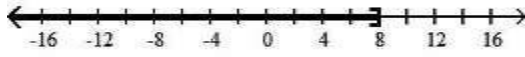
292) 6n - 18 ≤ 2(2n - 1)

292) _____
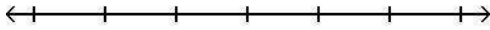
A) (-∞, 8)

B) [8, ∞)
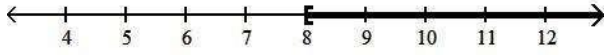
C) (-∞, 8]
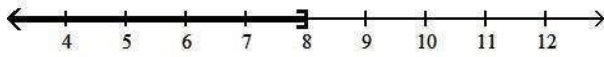
D) (8, ∞)

293) $\frac{2}{3}$ (2x - 1) < 10

293) _____

A) (-∞, - 8)
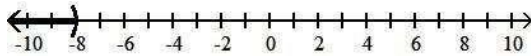
B) (-∞, 8]
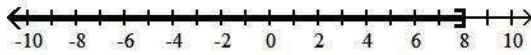
C) (-∞, 8)
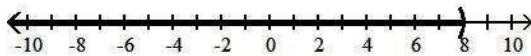
D) [- 8, ∞)
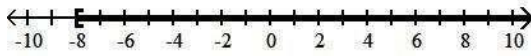
Solve the inequality.

294) x + 5 ≥ x - 2

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

B) (-∞, ∞)

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

D) ∅

294) _____

295) 10x + 12 > 10(x + 10)

A) (-∞, 12)

B) (12, ∞)

C) ∅

D) (-∞, ∞)

295) _____

296) 9x - 15 > 9(x - 13)

A) (15, ∞)

B) (-∞, 15)

C) ∅

D) (-∞, ∞)

296) _____

297) $2x \le 2(x + 10)$

    A) $(-\infty, \infty)$ B) $(-\infty, 10]$ C) $\emptyset$ D) $(-\infty, 2]$

297) _____

298) $8x - 7 \ge 7(x - 1)$

    A) $\emptyset$ B) $(-\infty, 0]$ C) $(-\infty, \infty)$ D) $[0, \infty)$

298) _____

299) $-3(-3 - x) < 5x + 21 - 12 - 2x$

    A) $\emptyset$ B) $(-\infty, \infty)$ C) $(-\infty, 9)$ D) $(-\infty, 0)$

299) _____

Solve the problem.

300) 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) 84   B) 86   C) 85   D) 83

300) _____

301) A certain car has a weight limit for all passengers and cargo of 1179 pounds. The four passengers in the car weigh an average of 160 pounds. Use an inequality to find the maximum weight of the cargo that the car can handle.

    A) at most $\dfrac{1179}{160}$ lb   B) at most 539 lb   C) at most 1019 lb   D) at most $\dfrac{1179}{2}$ lb

301) _____

302) A certain store has a fax machine available for use by its customers. The store charges $2.40 to send the first page and $0.60 for each subsequent page. Use an inequality to find the maximum number of pages that can be faxed for $9.00

    A) at most 15 pages   B) at most 11 pages

    C) at most 4 pages   D) at most 59 pages

302) _____

303) An archery set containing a bow and three arrows costs $80. Additional arrows can be purchased for $7 each. Gerri has $143 to spend on the set and additional arrows. Including the arrows in the set, what is the maximum total number of arrows Gerri can purchase?

    A) at most 9 arrows   B) at most 20 arrows

    C) at most 1 arrow(s)   D) at most 12 arrows

303) _____

304) When making a long distance call from a certain pay phone, the first three minutes of a call cost $3.00. 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 $6.60.

    A) at most 22 min   B) at most 2 min   C) at most 15 min   D) at most 12 min

304) _____

305) It takes 10 minutes to set up a candy making machine. Once the machine is set up, it produces 60 candies per minute. Use an inequality to find the number of candies that can be produced in 8 hours if the machine has not yet been set up.

    A) at most 480 candies   B) at most 4200 candies

    C) at most 4800 candies   D) at most 28,200 candies

305) _____

Solve the equation.

306) $7x + 6 = 55$

    A) $\{1\}$ B) $\{42\}$ C) $\{46\}$ D) $\{7\}$

306) _____

307) $2x - 10 = 5x + 6$

    A) $\left\{-\dfrac{7}{4}\right\}$ B) $\left\{-\dfrac{3}{16}\right\}$ C) $\left\{-\dfrac{16}{3}\right\}$ D) $\left\{\dfrac{3}{16}\right\}$

307) _____

308) 4x + 6(-2x - 3) = -17 - 9x

A) {- 35} B) {1} C) {- 1} D) $\left\{\dfrac{35}{17}\right\}$

308) _____

309) 4(2y - 2) = 7(y + 4)

A) {36} B) {20} C) {-20} D) {24}

309) _____

310) $-\dfrac{1}{7}x = 9$

A) {1} B) {2} C) {-63} D) {-2}

310) _____

311) $\dfrac{x}{5} + \dfrac{6}{5} = \dfrac{x}{7} + \dfrac{8}{7}$

A) {1} B) {-2} C) {-1} D) {2}

311) _____

312) 1.9 - 2.5x = -1.4 - 1.4x

A) {-4} B) {1.9} C) {1.3} D) {3}

312) _____

Solve the problem.

313) In one state, speeding fines are determined by the formula $F = 10(x - 65) + 50$, where F is the cost, in dollars, of the fine if a person is caught driving x miles per hour. If the fine comes to $240, how fast was the person driving?

A) 82 mph B) 84 mph C) 94 mph D) 86 mph

313) _____

Solve the formula for the specified variable.

314) V = lwh for h

A) $h = \dfrac{Vl}{w}$ B) h = Vl w C) $h = \dfrac{V}{lw}$ D) $h = \dfrac{lw}{V}$

314) _____

315) $w = \dfrac{P - 21}{2}$ for l

A) $l = \dfrac{P - 2w}{2}$ B) $l = \dfrac{2}{P - 2w}$ C) l = 2P - 4w D) $l = \dfrac{P + 2w}{2}$

315) _____

Solve the problem.

316) What is 5% of 30?

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

316) _____

317) 21.6 is 135% of what?

A) 29.16 B) 2916 C) 16 D) 0.16

317) _____

318) 1.6 is what percent of 4 ?

A) 0.4% B) 40% C) 640% D) 6.4%

318) _____

319) Four times a number added to 8 times the number is 48. What is the number?

A) 4 B) 0.7 C) -6 D) 6

319) _____

320) 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 $270,000, find each worker's salary.

A) president's salary = $20,250; department head's salary = $6750

320) _____

B) president's salary = $135,000; department head's salary = $67,500
C) president's salary = $67,500; department head's salary = $202,500
D) president's salary = $202,500; department head's salary = $67,500

321) 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 $54 under this promotional deal, how many minutes of phone calls did he make? Round to the nearest integer, if necessary.

321)_____

   A) 1380 min   B) 2 min   C) 8 min   D) 780 min

322) A rectangular carpet has a perimeter of 212 inches. The length of the carpet is 82 inches more than the width. What are the dimensions of the carpet?

322)_____

   A) length: 71 in.; width: 59 in.   B) length: 106 in.; width: 100 in.
   C) length: 106 in.; width: 94 in.   D) length: 94 in.; width: 12 in.

323) Sales at a local ice cream shop went up 70% in 5 years. If 23,000 ice cream cones were sold in the current year, find the number of ice cream cones sold 5 years ago. Round to the nearest cone when necessary.

323)_____

   A) 16,100 ice cream cones   B) 32,857 ice cream cones
   C) 13,529 ice cream cones   D) 6900 ice cream cones

Find the area of the figure.

324)
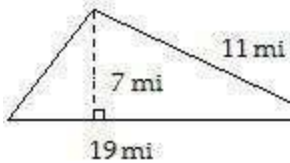
   A) $104.5 mi^2$ B) $38.5 mi^2$ C) $66.5 mi^2$ D) $133 mi^2$

324) _____

325)
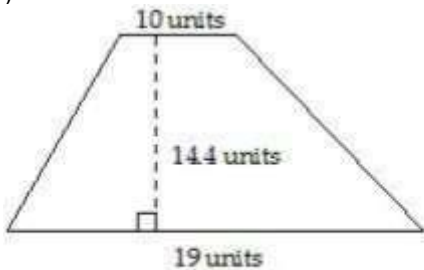
   A) $417.6 units^2$ B) $208.8 units^2$ C) $144 units^2$ D) $273.6 units^2$

325) _____

326)
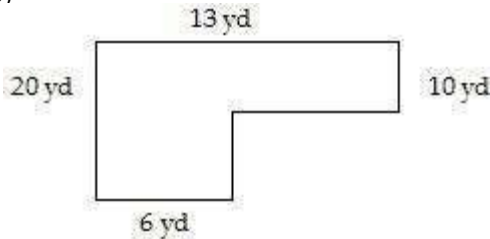
   A) $230 yd^2$ B) $190 yd^2$ C) $160 yd^2$ D) $200 yd^2$

326) _____

Find the volume of the figure. Where applicable, express answers in terms of π.

327)

2 in.

9 in.

8 in.
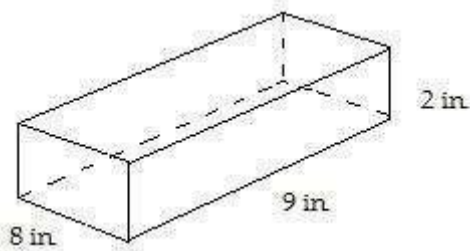
A) 144 in.^{3} B) 128 in.^{3} C) 648 in.^{3} D) 36 in.^{3}

328)

10 ft

7 ft
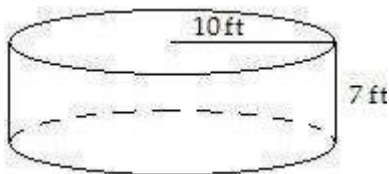
A) 70π ft^3 B) 100π ft^3 C) 700 ft^3 D) 700π ft^3

Solve the problem.

329) What will it cost to cover a rectangular floor measuring 40 feet by 80 feet with square tiles that measure
2 feet on each side if a box of 10 tiles costs $16 per box?

A) $640   B) $40   C) $2560   D) $1280

330) A sailboat has a triangular sail with an area of 48 square feet and a base that measures 6 feet. Find the height of the sail.

A) 24 ft   B) 32 ft   C) 8 ft   D) 16 ft

331) In a triangle, one angle is 3 times as large as another. The measure of the third angle is 130° greater than that of the smallest angle. Find the measure of each angle.

A) 10°, 30°, 130°   B) 20°, 60°, 100°   C) 10°, 30°, 140°   D) 15°, 45°, 120°

332) How many degrees are there in an angle that measures 48° more than the measure of its compliment?

A) 21°   B) 114°   C) 69°   D) 66°

Express the solution set of the inequality in interval notation and graph the interval.

333) $x > -4$
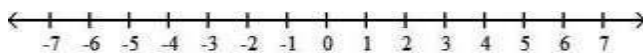
A) $(-4, \infty)$
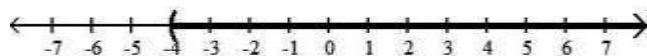
B) $(-\infty, -4]$
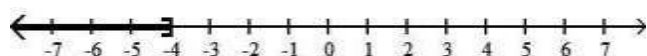
C) $[-4, \infty)$
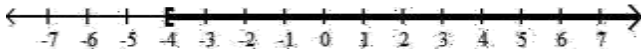
D) (-∞, -4)
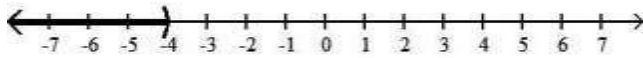
334) x ≤ -5   334) _____
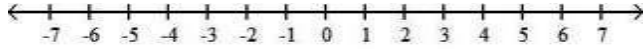
A) (-∞, -5]
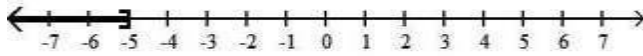
B) (-∞, -5)
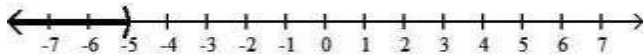
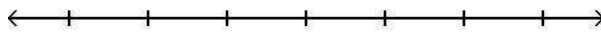C) (-5, ∞)
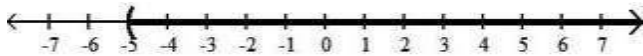
D) [-5, ∞)
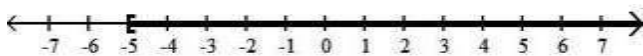
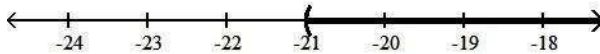**Solve the inequality and graph the solution set on a number line.**
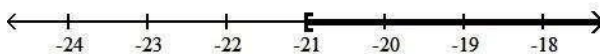
335) $\dfrac{y}{3}$ ≤ - 7   335) _____

A) (-21, ∞)

B) (-∞, -21]
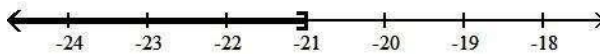
C) [-21, ∞)

D) (-∞, -21)
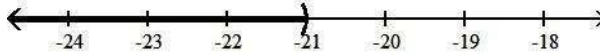
336) 12 - 6x ≥ - 36   336) _____
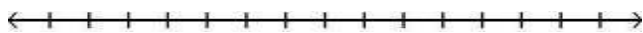
A) (-∞, 4]
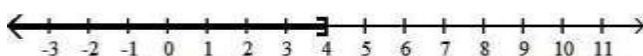
B) (-∞, 8]

C) [8, ∞)
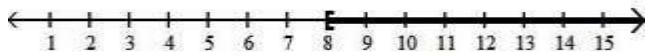
D) [4, ∞)
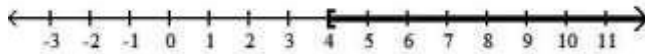
337) 2x - 6 < 3(x - 1)   337) _____
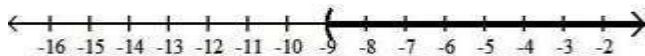

A) (-∞, 3)
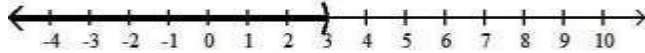
B) (-∞, 9)

C) (-9, ∞)

D) (-3, ∞)

Solve the problem.

338) Claire received scores of 85, 88, 87, and 75 on her algebra tests. What score must she receive on   338)_____
the fifth test to have an overall test score average of at least 83?
A) at most 81   B) at least 80   C) at least 81   D) at most 80

339) The length of a rectangle is 40 feet. For what widths is the perimeter less than 108 feet?   339) _____
A) widths less than 68 ft   B) widths less than 34 ft
C) widths less than 14 ft   D) widths less than 28 ft

1) A
2) B
3) B
4) A
5) A
6) A
7) B
8) A
9) A
10) B
11) B
12) B
13) B
14) B
15) A
16) B
17) D
18) A
19) A
20) A
21) C
22) B
23) C
24) C
25) D
26) B
27) C
28) D
29) C
30) B
31) D
32) C
33) B
34) D
35) D
36) A
37) C
38) B
39) B
40) A
41) D
42) D
43) A
44) B
45) C
46) C
47) D
48) A
49) A
50) A
51) A

52) B
53) C
54) C
55) C
56) C
57) C
58) B
59) C
60) D
61) C
62) D
63) A
64) C
65) D
66) D
67) A
68) A
69) D
70) C
71) C
72) B
73) C
74) A
75) A
76) C
77) D
78) C
79) B
80) A
81) D
82) B
83) B
84) C
85) C
86) A
87) C
88) D
89) A
90) B
91) A
92) D
93) B
94) A
95) D
96) C
97) B
98) B
99) B
100) D
101) D
102) C
103) C

104) A
105) B
106) B
107) D
108) A
109) C
110) A
111) A
112) B
113) B
114) D
115) C
116) D
117) B
118) D
119) A
120) D
121) B
122) B
123) C
124) A
125) D
126) C
127) D
128) B
129) A
130) D
131) C
132) C
133) A
134) C
135) C
136) D
137) A
138) B
139) D
140) B
141) C
142) D
143) A
144) A
145) B
146) A
147) B
148) A
149) B
150) C
151) D
152) D
153) B
154) A
155) A

156) D
157) C
158) D
159) D
160) A
161) C
162) B
163) B
164) B
165) D
166) B
167) A
168) C
169) A
170) D
171) B
172) C
173) C
174) A
175) A
176) A
177) C
178) B
179) B
180) A
181) A
182) C
183) B
184) B
185) A
186) B
187) D
188) D
189) A
190) B
191) A
192) A
193) B
194) A
195) D
196) B
197) D
198) C
199) C
200) C
201) B
202) C
203) C
204) A
205) C
206) D
207) B

208) B
209) D
210) A
211) D
212) A
213) C
214) C
215) B
216) A
217) D
218) C
219) D
220) A
221) D
222) D
223) B
224) B
225) B
226) A
227) A
228) A
229) A
230) D
231) A
232) A
233) B
234) C
235) D
236) D
237) A
238) B
239) C
240) A
241) C
242) A
243) D
244) D
245) A
246) D
247) C
248) C
249) A
250) A
251) A
252) B
253) A
254) A
255) C
256) C
257) B
258) A
259) A

260) A
261) C
262) B
263) D
264) B
265) A
266) C
267) A
268) D
269) A
270) A
271) A
272) C
273) D
274) C
275) D
276) D
277) B
278) A
279) D
280) D
281) D
282) C
283) C
284) D
285) B
286) A
287) A
288) D
289) D
290) C
291) C
292) C
293) C
294) B
295) C
296) D
297) A
298) D
299) A
300) C
301) B
302) B
303) D
304) C
305) D
306) D
307) C
308) B
309) A
310) C
311) C

312) D
313) B
314) C
315) A
316) D
317) C
318) B
319) A
320) D
321) D
322) D
323) C
324) C
325) B
326) B
327) A
328) D
329) D
330) D
331) C
332) C
333) A
334) A
335) B
336) B
337) D
338) B
339) C