Test Bank for Intermediate Algebra 8th edition Tobey Slater Blair and Crawford 0134178963 9780134178967

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Solution Manual

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

Solve.

1) 13 = -29 + a
A) a = 42 B) a = -42 C) a = 16 D) a = -16
Answer: A

2) -14 = -30 + y
A) y = -44 B) y = 44 C) y = 16 D) y = -16
Answer: C

3) -5x = 30
A) x = 1 B) x = 35 C) x = -6 D) x = -35
Answer: C

4) 2x + 7 = 19
A) x = 10 B) x = 14 C) x = 2 D) x = 6
Answer: D

5) 6x - 2 = 22
A) x = 18 B) x = 22 C) x = 4 D) x = 5
Answer: C

6) -4x + 4 = 1 - 10x
A) x = - 2 B) x = 2 C) $x = -\frac{14}{5}$ D) $x = -\frac{1}{2}$
Answer: D

7) 11x - 5 = 3x + 51
A) x = 10 B) x = 5 C) x = 7 D) x = 8
Answer: C

8) 77 + 4x + 3 = 12x
A) x = 8 B) x = 13 C) x = 11 D) x = 10
Answer: D

9) 8y + 4(6 + y) = 3(y - 4) + 10y
A) y = 10 B) y = -10 C) y = 36 D) y = -36
Answer: C

10) 6x - 1 - 7x + 2 = 5
A) x = - 2 B) $x = \frac{4}{13}$ C) x = - 4 D) x = 4
Answer: C

11) -6x + 6 + 4x = -3x + 11
A) x = -6 B) no solution C) x = 5 D) any real number
Answer: C

12) $4(x + 7) = 5(x - 3)$

A) $x = 13$ B) $x = 43$ C) $x = -\frac{13}{9}$ D) No solution

Answer: B

13) $7x + 3 - 4(x + 1) = -4x - 5$

A) $x = \frac{1}{5}$ B) $x = -4$ C) $x = -\frac{4}{7}$ D) $x = -\frac{1}{8}$

Answer: C

14) $4(3x - 2) + 25 = 7x - 3$

A) $x = -4$ B) $x = -20$ C) $x = -100$ D) $x = 4$

Answer: A

15) $2 - 5(y + 9) = 9 + 8y$

A) $y = -\frac{34}{3}$ B) $y = \frac{2}{13}$ C) $y = \frac{38}{13}$ D) $y = -4$

Answer: D

16) $\frac{1}{2}k = 6$

A) $k = 9$ B) $k = 2$ C) $k = 8$ D) $k = 12$

Answer: D

17) $\frac{y}{3} + \frac{1}{5} = \frac{3}{4}$

A) $y = \frac{33}{20}$ B) $y = 57$ C) $y = -1$ D) $y = \frac{57}{20}$

Answer: A

18) $\frac{x}{3} - 24 = \frac{1}{5}$

A) $x = -\frac{357}{5}$ B) $x = \frac{365}{3}$ C) $x = \frac{363}{5}$ D) $x = \frac{27}{5}$

Answer: C

Solve the equation.

19) $\frac{3}{5} + \frac{x}{2} = \frac{19}{10}$

A) $x = -\frac{13}{2}$ B) $x = \frac{13}{2}$ C) $x = \frac{13}{5}$ D) $x = -\frac{13}{5}$

Answer: C

Solve.

20) $\frac{1}{4}(y + 9) - 5 = 12$

A) y = 44 B) y = 77 C) y = 59 D) y = 23

Answer: C

21) $\frac{3y}{5} - \frac{7}{2} = -6y$

A) $y = \frac{35}{12}$ B) $y = \frac{35}{66}$ C) $y = \frac{7}{66}$ D) $y = -\frac{25}{6}$

Answer: B

22) $11 - \frac{1}{2}(y + 4) = -5$

A) y = 23 B) y = 36 C) y = 28 D) y = 17

Answer: C

23) $\frac{15x}{4} + \frac{1}{2} = \frac{7x}{2}$

A) x = 16 B) x = 2 C) x = -16 D) x = -2

Answer: D

24) $4 + \frac{7x}{4} = 7 - (x + 3)$

A) x = 0 B) $x = \frac{1}{8}$ C) x = 1 D) x = 8

Answer: A

25) $\frac{5x + 8}{2} + \frac{5}{2} = -\frac{3x}{5}$

A) $x = \frac{15}{31}$ B) $x = -\frac{65}{19}$ C) $x = -\frac{15}{31}$ D) $x = -\frac{65}{31}$

Answer: D

26) $\frac{1}{9}(x - 27) - \frac{1}{5}(x - 5) = x - 7$

A) $x = \frac{495}{49}$ B) $x = \frac{405}{49}$ C) $x = \frac{225}{49}$ D) $x = \frac{135}{49}$

Answer: C

27) $\frac{x + 6}{4} - \frac{5}{2} = \frac{7}{2}$

A) x = 30 B) $x = \frac{21}{2}$ C) x = 18 D) $x = \frac{15}{2}$

Answer: C

28) $\frac{x + 5}{3} + \frac{x - 1}{6} = 2$

A) x = 16 B) x = 0 C) x = 36 D) x = 1

Answer: D

29) -4.4x + 1.5 = -4.5 - 1.4x

A) x = 1.4 B) x = 2 C) x = -9 D) x = 1.7

Answer: B

30) 1.3x - 2.2 = 0.8x - 1.35

A) x = 1.7 B) x = 1.717 C) x = 1.71 D) x = -0.588

Answer: A

31) 0.3(x + 7) = 12

A) x = 47 B) x = 5 C) x = 16.667 D) x = 33

Answer: D

32) 0.03 = 0.5x - 10

A) x = 9.53 B) x = -19.94 C) x = 5.015 D) x = 20.06

Answer: D

33) 0.70x - 0.20(50 + x) = 0.40(50)

A) x = 50 B) x = 60 C) x = 70 D) x = 30

Answer: B

34) 0.08y + 0.08(100 - y) = 0.25y

A) y = 64 B) y = 2 C) y = 32 D) y = 20

Answer: C

35) 5 + 0.1(8 - y) = 1.2y - 6(y - 0.5)

A) $y = -\frac{118}{47}$ B) $y = -\frac{63}{38}$ C) y = 0 D) $y = -\frac{88}{47}$

Answer: C

36) 20x - 5 - 4x = 13x + 5 + 3x

A) x = 10 B) x = 20 C) any real number D) no solution

Answer: D

37) 16x + 14(x + 1) = 30(x + 1) - 16

A) x = 14 B) x = 0 C) any real number D) no solution

Answer: C

38) 10x - 2(x + 4) = 3 + 8(x + 7)

A) x = 14 B) any real number C) x = 63 D) no solution

Answer: D

39) $-12 + \frac{12x}{7} = x - 12 + \frac{5x}{7}$

A) any real number B) no solution C) $x = \frac{7}{12}$ D) x = -12

Answer: A

Solve for y.

40) $6x - 7y = 4$

A) $y = \frac{6x - 4}{7}$ B) $y = \frac{4 - 6x}{7}$ C) $y = 6x - 4$ D) $y = \frac{6x + 4}{7}$

Answer: A

41) $6x + 7y = 10$

A) $y = \frac{6x - 10}{7}$ B) $y = \frac{10 - 6x}{7}$ C) $y = \frac{6x + 10}{7}$ D) $y = \frac{6}{7}x - \frac{10}{7}$

Answer: B

42) $4x + 5y = 7x + 9$

A) $y = \frac{5x - 9}{3}$ B) $y = \frac{11x + 9}{5}$ C) $y = \frac{3x + 9}{5}$ D) $y = 3x + 11$

Answer: C

43) $3y + 7x = 9y - 10$

A) $y = \frac{7x - 10}{6}$ B) $y = \frac{6x + 10}{7}$ C) $y = \frac{7x + 10}{12}$ D) $y = \frac{7x + 10}{6}$

Answer: D

44) $x = \frac{1}{10}y - 9$

A) $y = x + 90$ B) $y = 10x + 9$ C) $y = 10x + 90$ D) $y = x + 9$

Answer: C

45) $x = -\frac{2}{3}y + \frac{1}{5}$

A) $y = -15x + 3$ B) $y = \frac{-15x + 3}{10}$ C) $y = \frac{15x + 3}{5}$ D) $y = \frac{-15x - 3}{10}$

Answer: B

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

A) $y = \frac{2 + 3x}{4}$ B) $y = \frac{30 + 5x}{18}$ C) $y = \frac{30 + 3x}{4}$ D) $y = \frac{2 + 5x}{18}$

Answer: B

Solve for the specified variable.

47) $d = rt$ for t

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

Answer: A

48) $A = \frac{1}{2}bh$ for b

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

Answer: B

49) $S = 2\pi rh$ for h

A) $h = \frac{S}{2\pi r}$ B) $h = \frac{Sr}{2\pi}$ C) $h = 2\pi rS$ D) $h = S - 2\pi r$

Answer: A

50) $V = \frac{1}{3}\pi r^2 h$

A) $h = \frac{V\pi r^2}{3}$ B) $h = \frac{V}{3\pi r^2}$ C) $h = \frac{3V}{\pi r^2}$ D) $h = V - \frac{1}{3}\pi r^2$

Answer: C

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

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

Answer: A

52) $P = S_1 + S_2 + S_3$ for S_3

A) $S_3 = P + S_1 + S_2$ B) $S_3 = S_1 + S_2 - P$ C) $S_3 = S_1 + P - S_2$ D) $S_3 = P - S_1 - S_2$

Answer: D

53) $F = \frac{9}{5}C + 32$ for C

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

Answer: B

54) $P = 2L + 2W$ for W

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

Answer: B

55) $H = \frac{7}{3}(a + 2b)$; for b

A) $b = \frac{3H + 7a}{14}$ B) $b = 3H - 7a - 14$ C) $b = \frac{3H - 7a}{14}$ D) $b = \frac{3H - 7a}{3}$

Answer: C

56) $9(7ax + y) = 5ax - 2y$ for x

A) $x = -\frac{11y}{58a}$ B) $x = \frac{7y}{58a}$ C) $x = -\frac{3y}{58a}$ D) $x = -\frac{11y}{68a}$

Answer: A

Follow the given instructions.

57) (a) Solve for h: $V = \frac{1}{3}b^2h$

(b) Evaluate when V = 49 and b = 7.

A) (a) $h = \frac{V}{3b^2}$ (b) 1

B) (a) $h = \frac{V}{3b^2}$ (b) 27

C) (a) $h = \frac{3V}{b^2}$ (b) 9

D) (a) $h = \frac{3V}{b^2}$ (b) 3

Answer: D

58) (a) Solve for a: $S = \frac{a}{1 - r}$

(b) Evaluate when S = 9 and $r = \frac{2}{3}$.

A) (a) $a = S + (1 - r)$ (b) $\frac{28}{3}$

B) (a) $a = \frac{1 - r}{S}$ (b) $\frac{1}{27}$

C) (a) $a = \frac{S}{1 - r}$ (b) 27

D) (a) $a = S(1 - r)$ (b) 3

Answer: D

Solve.

59) The formula for the perimeter of a rectangle is P = 2L + 2W. Solve the formula for L. Use this formula to find the length of the rectangle if the perimeter, P, is 20 feet and the width, W, is 5 feet.

A) L = 15 feet B) L = 7.5 feet C) L = 10 feet D) L = 5 feet

Answer: D

60) The formula for the volume of a cone is $V = \frac{1}{3}Bh$. Solve the formula for B. Use this formula to find the area of the base of the cone if the volume, V, is 15 cubic centimeters and the height, h, is 5 centimeters.

A) B = 75 square centimeters B) B = 9 square centimeters

C) B = 3 square centimeters D) B = 20 square centimeters

Answer: B

61) The formula for the area of a trapezoid is $A = \frac{1}{2}(b+B)h$. Solve the formula for h. Use this formula to find the height of the trapezoid if the area, A, is 126 square meters, and the bases, b and B, are 12 meters and 16 meters.

A) h = 9 meters B) h = 192 meters C) h = 14 meters D) h = 112 meters

Answer: A

62) The average price (in dollars) to rent a studio in a certain city can be approximated by the equation $p = 31.4t + 563$ where t is the number of years since 1990. Solve this equation for t and use the new equation to determine approximately what year it will be when the average price of a studio in this city reaches $1316.60.

A) 2016

B) 2015

C) 2017

D) 2014

Answer: D

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

$C = 0.7434D + 5.9029$

where C represents the consumption of products in billions of dollars and D represents disposable income in billions of dollars. Solve the equation for D and use the result to determine the disposable income D if the consumption C is $7.80 billion. Round your answer to the nearest tenth of a billion.

A) $4.6 billion B) $2.4 billion C) $2.6 billion D) $11.7 billion

Answer: C

Solve the absolute value equation.

64) $|x| = 4$

A) $x = -4$ B) $x = 16$ C) $x = -4, 4$ D) $x = 4$

Answer: C

65) $|x + 8| = 2$

A) $x = -10, 6$ B) $x = -6$ C) $x = -10, -6$ D) $x = 10, -6$

Answer: C

66) $|2x + 4| = 8$

A) $x = -2, 6$ B) $x = -6$ C) $x = 2$ D) $x = -6, 2$

Answer: D

67) $|6x - 2| = 4$

A) $x = -5, -1$ B) $x = 1, 5$ C) $x = -1, \frac{1}{3}$ D) $x = -\frac{1}{3}, 1$

Answer: D

68) $|6 - 8x| = 5$

A) $x = -\frac{13}{6}, -\frac{1}{2}$ B) $x = \frac{1}{2}, \frac{13}{6}$ C) $x = \frac{1}{8}, \frac{11}{8}$ D) $x = -\frac{11}{8}, -\frac{1}{8}$

Answer: C

69) $\left|\frac{1}{6}x - 1\right| = 8$

A) $x = -42, 54$ B) $x = -13, 3$ C) $x = 3$ D) $x = 54$

Answer: A

70) $|0.5x - 0.7| = 3$

A) $x = 0.8, 2$ B) $x = -4.6, 7.4$ C) $x = -2, -0.8$ D) $x = -7.4, 4.6$

Answer: B

71) $\left|\frac{11x}{8} - 12\right| = 0$

A) $x = \frac{96}{11}, -\frac{96}{11}$ B) $x = \frac{85}{8}$ C) no solution D) $x = \frac{96}{11}$

Answer: D

72) $\left|\frac{9x}{5} + \frac{4}{11}\right| = -10$

A) $x = -\frac{190}{33}, \frac{530}{99}$ B) $x = \frac{530}{99}$ C) no solution D) $x = -\frac{190}{33}$

Answer: C

73) $\left|\frac{6x + 4}{5}\right| = \frac{8}{7}$

A) $x = -\frac{34}{21}, \frac{2}{7}$ B) no solution C) $x = \frac{2}{7}$ D) $x = -\frac{22}{21}, \frac{6}{7}$

Answer: A

74) $\left|\frac{3x - 2}{7}\right| = 4$

A) $x = \frac{26}{3}$ B) $x = 10, -\frac{26}{3}$ C) no solution D) $x = -10$

Answer: B

75) $\left|\frac{-11 - 4x}{9}\right| = \frac{10}{3}$

A) no solution B) $x = -\frac{41}{4}, \frac{19}{4}$ C) $x = -\frac{101}{12}, \frac{79}{12}$ D) $x = \frac{19}{4}$

Answer: B

76) $|x + 3| + 4 = 12$

A) $x = -5, 11$ B) $x = 5$ C) $x = -11, 5$ D) no solution

Answer: C

77) $|8x + 3| + 3 = 11$

A) no solution B) $x = \frac{5}{8}, -\frac{11}{8}$ C) $x = -\frac{5}{8}, \frac{11}{8}$ D) $x = \frac{5}{3}, -\frac{11}{3}$

Answer: B

78) $|8x + 5| - 3 = 4$

A) no solution B) $x = \frac{2}{5}, -\frac{12}{5}$ C) $x = \frac{1}{4}, -\frac{3}{2}$ D) $x = -\frac{1}{4}, \frac{3}{2}$

Answer: A

79) $\left|\frac{x + 6}{4}\right| - 8 = 5$

A) x = 6, 46 B) x = -58, 46 C) x = 46 D) no solution

Answer: B

80) $\left|\frac{7+8x}{5}\right| + 2 = 6$

A) no solution B) $x = -\frac{27}{8}, \frac{13}{8}$ C) $x = \frac{13}{8}$ D) $x = -\frac{47}{8}, \frac{13}{8}$

Answer: B

81) $\left|2 + \frac{3}{5}x\right| + 9 = 16$

A) no solution B) $x = -45, \frac{25}{3}$ C) $x = -\frac{27}{5}, 3$ D) $x = -15, \frac{25}{3}$

Answer: D

82) $|6(x - 4)| - 12 = -6$

A) $x = 5$ B) $x = 3, 5$ C) $x = 7, 5$ D) no solution

Answer: B

83) $\left|6 - \frac{4}{3}x\right| - 9 = 10$

A) $x = -\frac{52}{3}$ B) $x = \frac{39}{4}, -\frac{75}{4}$ C) $x = -\frac{39}{4}, \frac{75}{4}$ D) $x = -\frac{39}{4}$

Answer: C

84) $\left|\frac{1}{3} - \frac{2}{5}x\right| - 1 = 5$

A) $x = \frac{85}{6}, -\frac{95}{6}$ B) $x = -\frac{95}{6}$ C) $x = -\frac{85}{6}, \frac{95}{6}$ D) $x = -\frac{85}{6}$

Answer: C

85) $|4x - 8| = |x - 1|$

A) no solution B) $x = -\frac{7}{3}, -\frac{9}{5}$ C) $x = \frac{7}{3}, -3$ D) $x = \frac{7}{3}, \frac{9}{5}$

Answer: D

86) $\left|\frac{1}{2}x + 2\right| = \left|\frac{3}{4}x - 2\right|$

A) $x = 16, 12$ B) $x = 16, 0$ C) no solution D) $x = 10$

Answer: B

87) $|0.8x + 13| = |x + 0.2|$

A) $x = -1.667, -1.571$ B) $x = -7.111, 66$ C) no solution D) $x = -7.333, 64$

Answer: D

88) $\left|\frac{x+6}{7}\right| = |2x+9|$

A) $x = -\frac{23}{5}, -\frac{57}{13}$ B) $x = -1, -\frac{3}{13}$ C) no solution D) $x = \frac{19}{5}, \frac{69}{13}$

Answer: A

89) $|1.3x + 2.1| = |x - 3|$

A) x = -1.286, -2 B) no solution C) x = -0.783, -8 D) x = 0.391, -17

Answer: D

90) $\left|5 - x\right| = \left|\frac{2}{3}x + 4\right|$

A) $x = 9, \frac{11}{3}$ B) $x = \frac{3}{5}, 27$ C) $x = \frac{3}{5}$ D) $x = \frac{5}{3}, 27$

Answer: B

91) $\left|2 - x\right| = \left|\frac{x}{4} + 7\right|$

A) x = -4 B) x = 4, -12 C) x = -4, 12 D) x = -12

Answer: C

Write an algebraic equation and use it to solve the problem.

92) 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 $52 under this promotional deal, how many minutes of phone calls did he make? Round to the nearest integer, if necessary.

A) 2 minutes B) 1340 minutes C) 7 minutes D) 740 minutes

Answer: D

93) Manuel can pay for his car insurance on a monthly basis, but if he pays an entire year's insurance in advance, he'll receive a $40 discount. His discounted bill for the year would then be $632. What is the monthly fee for his insurance?

A) $56 B) $52.67 C) $92.67 D) $49.33

Answer: A

94) A poster in the shape of a triangle has one side that is five inches more the length of the shortest side, and another side that is three inches less than twice the shortest side. Find the dimensions of the poster if its perimeter is 38 inches.

A) 9 inches, 14 inches, 16 inches B) 10 inches, 14 inches, 15 inches

C) 9 inches, 15 inches, 15 inches D) 9 inches, 14 inches, 15 inches

Answer: D

95) The length of a rectangular room is 4 feet longer than twice the width. If the room's perimeter is 164 feet, what are the room's dimensions?

A) Width = 52 ft; length = 112 ft B) Width = 26 ft; length = 56 ft

C) Width = 31 ft; length = 66 ft D) Width = 39 ft; length = 43 ft

Answer: B

96) Two-fifths of a number is -8. What is the number?

A) The number is $-\frac{16}{5}$. B) The number is $-\frac{38}{5}$.

C) The number is $-\frac{42}{5}$. D) The number is -20.

Answer: D

97) The revenue of Company X quadruples. Then it increases by $1.6 million to its present revenue of $24.0 What was the original revenue?

A) The original revenue of Company X was $22.4 million.
B) The original revenue of Company X was $6.4 million.
C) The original revenue of Company X was $4.4 million.
D) The original revenue of Company X was $5.6 million.

Answer: D

98) Sergio's internet provider charges its customers $12 per month plus 3¢ per minute of on-line usage. Sergio received a bill from the provider covering a 2-month period and was charged a total of $43.50. How many minutes did he spend on-line during that period? (Round to the nearest whole minute, if necessary.)

A) 650 minutes B) 798 minutes C) 465 minutes D) 65 minutes

Answer: A

99) City A experienced 18 armed robberies less than twice that of City B. In the two cities combined, 138 armed robberies occurred. How many armed robberies occurred in City A and in City B?

A) City A: 86 armed robberies; City B: 52 armed robberies
B) City A: 34 armed robberies; City B: 104 armed robberies
C) City A: 62 armed robberies; City B: 40 armed robberies
D) City A: 60 armed robberies; City B: 78 armed robberies

Answer: A

100) The Four Flying Feldmans acrobat troupe is planning a nationwide tour. They will give 8 performances per week in various cities across the U.S. The venues in which they will perform hold about 9000 people each, and concert tickets will sell for $18 each. The advance expenses for each performance are $23,000, and the additional travel, lodging, meal, and miscellaneous costs are $35,000 per week. How many weeks will the Four Flying Feldmans need to be on tour if each of them wants to earn $10,770,000 from the tour?

A) 40 weeks B) 14 weeks C) 8 weeks D) 10 weeks

Answer: A

101) During a road trip, Tonya drove one-third the distance that Lana drove. Mark drove 24 miles more than Lana. The total distance they drove on the trip was 367 miles. How many miles did each person drive?

A) Tonya drove 41 miles, Lana drove 123 miles, and Mark drove 147 miles.
B) Tonya drove 147 miles, Lana drove 441 miles, and Mark drove 465 miles.
C) Tonya drove 49 miles, Lana drove 147 miles, and Mark drove 171 miles.
D) Tonya drove 441 miles, Lana drove 147 miles, and Mark drove 123 miles.

Answer: C

102) A hot air balloon spent several minutes ascending. It then stayed at a level altitude for two times as long as it had ascended. It took 4 minutes less to descend than it did to ascend. The entire trip took one hour and 8 minutes. For how long was the balloon at a level altitude?

A) 32 minutes B) 18 minutes C) 36 minutes D) 14 minutes

Answer: C

103) The three most prominent buildings in a city, Washington Center, Lincoln Galleria, and Jefferson Square Tower, have a total height of 1800 feet. Find the height of each building if Jefferson Square Tower is three times as tall as Lincoln Galleria and Washington Center is 200 feet taller than Lincoln Galleria.

A) Washington Center: 520 feet
Lincoln Galleria: 320 feet
Jefferson Square Tower: 960 feet

B) Washington Center: 400 feet
Lincoln Galleria: 200 feet
Jefferson Square Tower: 1200 feet

C) Washington Center: 600 feet
Lincoln Galleria: 200 feet
Jefferson Square Tower: 1000 feet

D) Washington Center: 690 feet
Lincoln Galleria: 230 feet
Jefferson Square Tower: 880 feet

Answer: A

104) Amy is choosing a cell phone plan. Three different companies offer a different number of free minutes of phone calls per month. City Com offers 280 less than twice the number of free minutes offered by Talk for Less Phone. Renee's Cell Phone offers 80 more free minutes per month than Talk for Less Phone. The sum of the free minutes offered by City Com and Talk for Less Phone is equal to twice the number of free minutes offered by Renee's Cell Phone. How many free minutes does each company offer?

A) City Com: 620 minutes
Talk for Less Phone: 450 minutes
Renee's Cell Phone: 530 minutes

B) City Com: 620 minutes
Talk for Less Phone: 460 minutes
Renee's Cell Phone: 540 minutes

C) City Com: 600 minutes
Talk for Less Phone: 440 minutes
Renee's Cell Phone: 520 minutes

D) City Com: 560 minutes
Talk for Less Phone: 420 minutes
Renee's Cell Phone: 500 minutes

Answer: C

Write an algebraic equation and use it to solve the problem.

105) The population of a town is currently 19,000. This represents an increase of 20% from the population 5 years ago. Find the population of the town 5 years ago. Round to the nearest whole number if necessary.

A) 15,200 B) 3800 C) 95,000 D) 15,833

Answer: D

106) After a 13% price reduction, a boat sold for $27,840. What was the boat's price before the reduction? (Round to the nearest cent, if necessary.)

A) $32,000 B) $214,153.85 C) $31,459.20 D) $3619.20

Answer: A

107) Inclusive of a 6.3% sales tax, a diamond ring sold for $2019.70. Find the price of the ring before the tax was added. (Round to the nearest cent, if necessary.)

A) $1892.46 B) $127.24 C) $2146.94 D) $1900

Answer: D

108) Holly bought a sweater on sale for 40% off the original price. If she saved $24, what was the original price?

A) $960.00 B) $36.00 C) $9.60 D) $60.00

Answer: D

109) When Milo got promoted at work, he received a 25% pay raise. He now earns $87,500 per year. What was his annual salary before his raise?

A) $17,500 B) $21,875 C) $87,500 D) $70,000

Answer: D

110) Ming got a 19% raise in her salary from last year. This year she is earning $158,270. How much did she make last year?

A) $25,270 B) $3,007,130 C) $8330 D) $133,000

Answer: D

111) Employment statistics show that 26,880 of the residents of Bear Valley were unemployed last month. This was a decrease of 16% from the previous month. How many residents were unemployed in the previous month?

A) 32,000 B) 31,181 C) 168,000 D) 4301

Answer: A

112) Suppose that 11% of the teachers at a university attended a conference. If 770 teachers attended the conference, how many teachers are at the university?

A) 77 teachers B) 77,000 teachers C) 7700 teachers D) 7000 teachers

Answer: D

Write an algebraic equation for the problem and solve it.

113) City A experienced 33 armed robberies less than twice that of City B. In the two cities combined, 177 armed robberies occurred. How many armed robberies occurred in City A and in City B?

A) City A: 107 armed robberies; City B: 70 armed robberies
B) City A: 63 armed robberies; City B: 48 armed robberies
C) City A: 37 armed robberies; City B: 140 armed robberies
D) City A: 72 armed robberies; City B: 105 armed robberies

Answer: A

114) The manager of a pet store received a shipment of birdseed in 12-pound bags. She divided each 12-pound bag into smaller bags of unequal weight, which she labelled small and large. The store sold 27 small bags of seed and 16 large bags of seed in one month. If a total of 247 pounds of seed were sold that month, how many pounds were in one small bag? In one large bag?

A) One small bag contained 5 pounds of seed.
One large bag contained 7 pounds of seed.

B) One small bag contained 7 pounds of seed.
One large bag contained 8 pounds of seed.

C) One small bag contained 4 pounds of seed.
One large bag contained 8 pounds of seed.

D) One small bag contained 6 pounds of seed.
One large bag contained 10 pounds of seed.

Answer: A

Write an algebraic equation and use it to solve the problem.

115) This year, two Girl Scout Troops together sold 462 boxes of cookies. Half of the Rockridge troop's sales were Thin Mints and $\frac{1}{4}$ of the Bayshore troop's sales were Thin Mints. Together they sold 177 boxes of Thin Mints.

How many boxes of cookies did each troop sell?

A) Rockridge: 231 boxes
Bayshore: 116 boxes

B) Rockridge: 89 boxes
Bayshore: 44 boxes

C) Rockridge: 251 boxes
Bayshore: 211 boxes

D) Rockridge: 246 boxes
Bayshore: 216 boxes

Answer: D

116) When Sam and Tyler first started working as software engineers, their weekly salaries totaled $1420. Now ten years later Sam is a senior engineer and Tyler is a manager. Sam's salary has doubled. Tyler's salary is 3 times as large. Together their weekly salaries now total $3540. How much did they each make ten years ago?

A) Sam earned $720 ten years ago
Tyler earned $700 ten years ago

B) Sam earned $1770 ten years ago
Tyler earned $1180 ten years ago

C) Sam earned $700 ten years ago
Tyler earned $720 ten years ago

D) Sam earned $710 ten years ago
Tyler earned $473 ten years ago

Answer: A

117) Nancy invested $1400 at a simple interest rate of 9% for 3 years. How much interest did she earn?

A) $37,800 B) $378 C) $52,920,000 D) $529,200

Answer: B

118) Jason borrowed $9000 at a simple interest rate of 6.5% for three-quarters of a year. What was the interest?

A) $9438.75 B) $438.75 C) $43.88 D) $9043.88

Answer: B

119) Don James wants to invest $58,000 to earn $6950 per year. He can invest in B-rated bonds paying 15% per year or in a Certificate of Deposit (CD) paying 8% per year. How much money should be invested in each to realize exactly $6950 in interest per year?

A) $24,000 in B-rated bonds and $34,000 in a CD
B) $33,000 in B-rated bonds and $25,000 in a CD
C) $25,000 in B-rated bonds and $33,000 in a CD
D) $34,000 in B-rated bonds and $24,000 in a CD

Answer: B

120) A bank loaned out $66,000, part of it at the rate of 11% per year and the rest at a rate of 7% per year. If the interest received was $5660, how much was loaned at 11%?

A) $40,000 B) $26,000 C) $39,000 D) $27,000

Answer: B

121) A loan officer at a bank has $89,000 to lend and is required to obtain an average return of 16% per year. If he can lend at the rate of 17% or the rate of 11%, how much can he lend at the 11% rate and still meet his required return?

A) $5235.29 B) $489,500.00 C) $3178.57 D) $14,833.33

Answer: D

122) A college student earned $7500 during summer vacation working as a waiter in a popular restaurant. The student invested part of the money at 10% and the rest at 6%. If the student received a total of $586 in interest at the end of the year, how much was invested at 10%?

A) $3750 B) $3400 C) $4100 D) $1250

Answer: B

123) The owners of a candy store want to sell, for $6 per pound, a mixture of chocolate-covered raisins, which usually sells for $3 per pound, and chocolate-covered macadamia nuts, which usually sells for $8 per pound. They have a 30-pound barrel of the raisins. How many pounds of the nuts should they mix with the barrel of raisins so that they hit their target value of $6 per pound for the mixture?

A) 39 lbs. B) 42 lbs. C) 48 lbs. D) 45 lbs.

Answer: D

124) A chemist needs 5 liters of a 50% salt solution. All she has available is a 20% salt solution and a 70% salt solution. How much of each of the two solutions should she mix to obtain her desired solution?

A) 2 liters of the 20% solution; 3 liters of the 70% solution
B) 2.5 liters of the 20% solution; 2.5 liters of the 70% solution
C) 1.5 liters of the 20% solution; 3.5 liters of the 70% solution
D) 1 liters of the 20% solution; 4 liters of the 70% solution

Answer: A

125) The manager of a coffee shop has one type of coffee that sells for $5 per pound and another type that sells for $12 per pound. The manager wishes to mix 100 pounds of the $12 coffee to get a mixture that will sell for $7 per pound. How many pounds of the $5 coffee should be used?

A) 250 pounds B) 175 pounds C) 350 pounds D) 125 pounds

Answer: A

126) A beverage wholesaler wants to create a new punch. He will mix fruit juice worth $2 a gallon and rum worth $7 a gallon. He wants to obtain 140 gallons worth of punch worth $4 a gallon. How much of each beverage should he use?

A) He should mix 98.0 gallons of juice with 42.0 gallons of rum.
B) He should mix 84 gallons of juice with 56 gallons of rum.
C) He should mix 112 gallons of juice with 28 gallons of rum.
D) He should mix 126.0 gallons of juice with 14.0 gallons of rum.

Answer: B

127) A chef has one cheese that contains 5% fat and one cheese that contains 55% fat. How many pounds of each cheese should she use in order to obtain 12 pounds of a cheese mixture that is 35% fat?

A) 4.8 pounds of the cheese that contains 5% fat and 7.2 pounds of the cheese that contains 55% fat.
B) 6 pounds of the cheese that contains 5% fat and 6 pounds of the cheese that contains 55% fat.
C) 3.6 pounds of the cheese that contains 5% fat and 8.4 pounds of the cheese that contains 55% fat.
D) 2.4 pounds of the cheese that contains 5% fat and 9.6 pounds of the cheese that contains 55% fat.

Answer: A

128) How much pure acid should be mixed with 9 gallons of a 50% acid solution in order to get an 80% acid solution?

A) 13.5 gal B) 36 gal C) 22.5 gal D) 4.5 gal

Answer: A

129) A chemist needs 130 milliliters of a 32% solution but has only 23% and 62% solutions available. Find how many milliliters of each that should be mixed to get the desired solution.

A) 100 ml of 23%; 30 ml of 62% B) 20 ml of 23%; 110 ml of 62%
C) 110 ml of 23%; 20 ml of 62% D) 30 ml of 23%; 100 ml of 62%

Answer: A

130) Two friends decide to meet in Chicago to attend a Cub's baseball game. Rob travels 190 miles in the same time that Carl travels 175 miles. Rob's trip uses more interstate highways and he can average 3 mph more than Carl. What is Rob's average speed?

A) 38 mph B) 35 mph C) 33 mph D) 43 mph

Answer: A

131) Carla and Patrick rode stationary bikes for the same amount of time. Carla rode at 8 miles per hour, and Patrick rode at 6.5 miles per hour. If Carla rode 0.75 miles farther than Patrick, how long did they use the bikes?

A) They each used the bikes for 0.75 hour. B) They each used the bikes for 0.42 hour.

C) They each used the bikes for 0.5 hour. D) They each used the bikes for 0.25 hour.

Answer: C

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

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

Answer: B

133) Five friends drove at an average rate of 55 miles per hour to a weekend retreat. On the way home, they took the same route but averaged 70 miles per hour. What was the distance between home and the retreat if the round trip took 10 hours?

A) 616 miles B) 308 miles C) $5\frac{3}{5}$ miles D) $2566\frac{2}{3}$ miles

Answer: B

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

A) $3\frac{4}{7}$ mph B) $6\frac{4}{7}$ mph C) $4\frac{3}{7}$ mph D) 7 mph

Answer: B

135) During a hurricane evacuation from the east coast of Georgia, a family traveled 200 miles west. For part of the trip, they averaged 50 mph, but as the congestion got bad, they had to slow to 20 mph. If the total time of travel was 7 hours, how many miles did they drive at the reduced speed?

A) 105 miles B) 110 miles C) 95 miles D) 100 miles

Answer: D

Insert the symbol < or > between the pair of numbers.

136) 2 ___ -5

A) > B) <

Answer: A

137) - 15___9

A) > B) <

Answer: B

138) -7 ___ -5

A) > B) <

Answer: B

139) -0.9 ___ 0.7

A) > B) <

Answer: B

140) $-3 \_\_\_ -\frac{17}{3}$

A) < B) >

Answer: B

141) $\frac{8}{19} \_\_\_ \frac{16}{17}$

A) < B) >

Answer: A

142) -0.4 ___ -0.41

A) > B) <

Answer: A

143) $-\frac{3}{8} \_\_\_ -\frac{1}{4}$

A) < B) >

Answer: A

144) |13 - 11| ___ |2 - 21|

A) < B) >

Answer: A

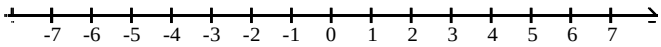
145) |-11 + 4 | ___ |-11 - 15 |

A) < B) >

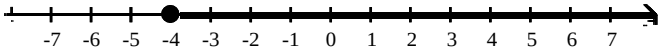
Answer: A

Graph the inequality.

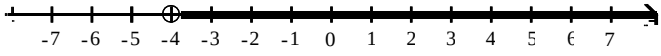
146) x > -4



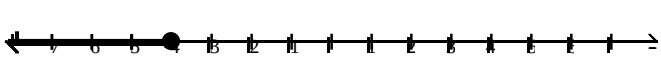
A)



B)



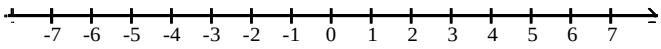
C)



D)

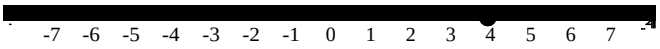
Answer: B

147) $x < 4$



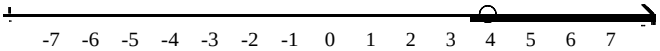
A)

B)



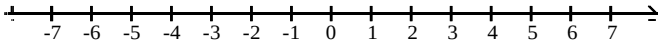
C)

D)

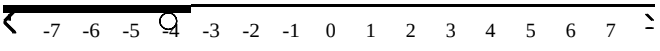


Answer: A

148) $x \geq -4$



A)



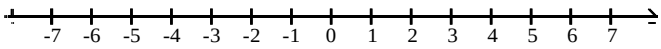
B)

C)

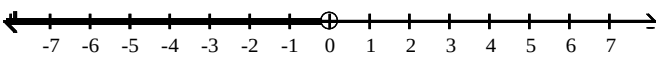
D)

Answer: C

149) $x \leq 0$



A)



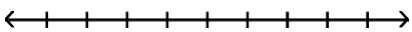
B)

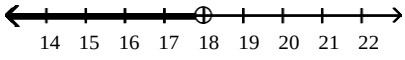
C)

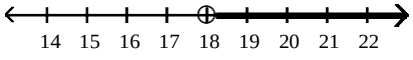
D)

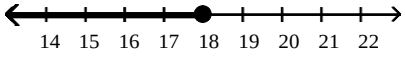
Answer: C

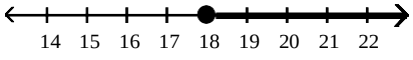
150) $x > 18$



A) 

B) 

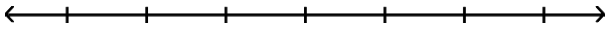
C) 

D) 

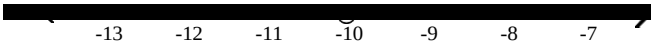
Answer: B

Solve for x and graph the solution.

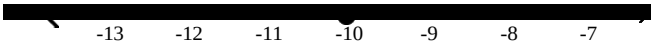
151) $x + 4 < -6$



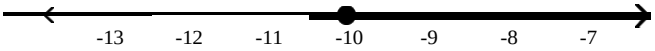
A) $x > -10$



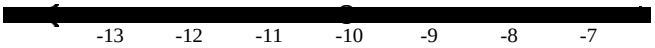
B) $x \leq -10$



C) $x \geq -10$

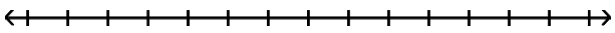


D) $x < -10$

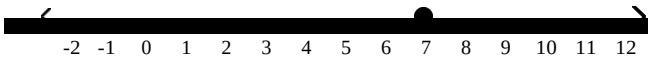


Answer: D

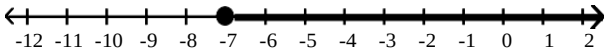
152) $2x - 2 \leq 12$



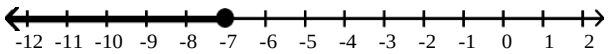
A) $x \geq 7$



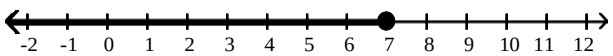
B) $x \geq -7$



C) $x \leq -7$

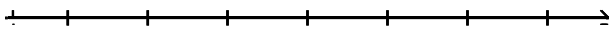


D) $x \leq 7$



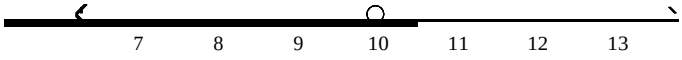
Answer: D

153) $13x - 2 > 12x + 8$



A) $x \leq 6$

B) $x < 10$

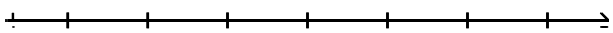


C) $x \geq 6$

D) $x > 10$

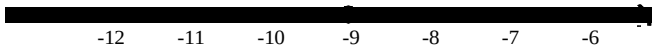
Answer: D

154) $-9x - 12 \leq -10x - 7$



A) $x < -9$

B) $x > -9$

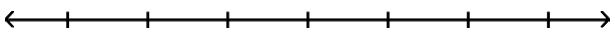


C) $x \geq 5$

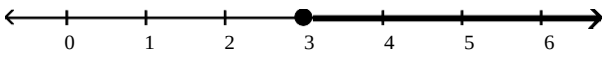
D) $x \leq 5$

Answer: D

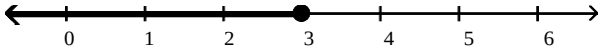
155) $5x - 2 \geq 4x + 1$



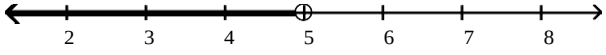
A) $x \geq 3$



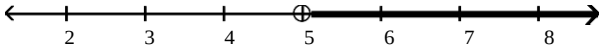
B) $x \leq 3$



C) $x < 5$

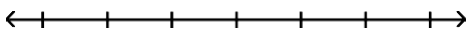


D) $x > 5$

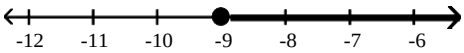


Answer: A

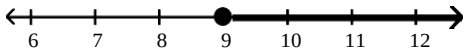
156) $6x + 12 \leq 10x + 48$



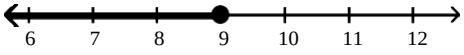
A) $x \geq -9$



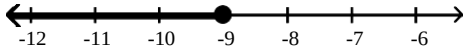
B) $x \geq 9$



C) $x \leq 9$

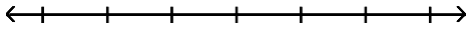


D) $x \leq -9$

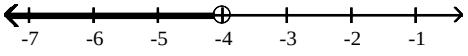


Answer: A

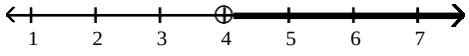
157) $0.6x + 1.1 > 0.9x - 0.1$



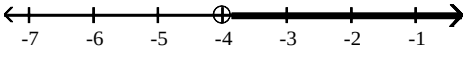
A) $x < -4$



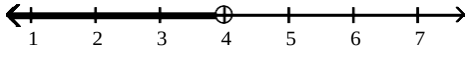
B) $x > 4$



C) $x > -4$



D) $x < 4$



Answer: D

Solve for x.

158) $x + 6 < 1$

A) $x < 7$ B) $x > 7$ C) $x > -5$ D) $x < -5$

Answer: D

159) $4x + 2 < 38$

A) $x < 9$ B) $x > 2$ C) $x > 9$ D) $x < 2$

Answer: A

160) $3x + 1 > 2x + 7$

A) $x < 6$ B) $x > 6$ C) $x > 8$ D) $x < 8$

Answer: B

161) $-5x - 2 \leq -6x - 1$

A) $x < 1$ B) $x \geq -3$ C) $x \leq 1$ D) $x \geq 1$

Answer: C

162) $3x + 3 - 4(x + 8) < 0$

A) $x < 29$ B) $x > 35$ C) $x < -35$ D) $x > -29$

Answer: D

163) $5x + \frac{5}{3} > \frac{3}{2}x - 2$

A) $x < \frac{22}{21}$ B) $x < -\frac{2}{21}$ C) $x > -\frac{4}{7}$ D) $x > -\frac{22}{21}$

Answer: D

164) $28x - 36 > 4(6x - 1)$

A) $x \geq 8$ B) $x \leq 8$ C) $x < 8$ D) $x > 8$

Answer: D

165) $-5(5x - 6) < -30x + 45$

A) $x \leq 3$ B) $x < 3$ C) $x \geq 3$ D) $x > 3$

Answer: B

166) $\frac{1}{9}(x + 18) + \frac{1}{5}(x + 5) \geq x + 4$

A) $x \geq -\frac{135}{31}$ B) $x \leq -\frac{225}{31}$ C) $x \geq -\frac{315}{31}$ D) $x \leq -\frac{45}{31}$

Answer: D

167) $9 + \frac{7x}{3} \leq 13 - (x + 4)$

A) $x \geq 0$ B) $x \geq 8$ C) $x \leq 0$ D) $x \leq 1$

Answer: C

168) $\frac{5x}{4} - \frac{2}{9} < -8x$

A) $x < \frac{8}{333}$ B) $x > -\frac{56}{9}$ C) $x > \frac{2}{333}$ D) $x < \frac{8}{53}$

Answer: A

169) $5(x + 4) + \frac{1}{6} \le 3 - \frac{x}{3}$

A) $x \le -\frac{103}{32}$ B) $x \le -\frac{20}{11}$ C) $x \le -\frac{103}{28}$ D) $x \le \frac{47}{96}$

Answer: A

170) $\frac{x+1}{5} - \frac{1}{40} > \frac{x+2}{8}$

A) $x < \frac{1}{13}$ B) $x > 1$ C) $x < 1$ D) $x > \frac{19}{3}$

Answer: B

171) $1.3x - 3.2 > 0.5x + 1.76$

A) $x > 6.2$ B) $x < -0.161$ C) $x < 6.82$ D) $x > 6.3$

Answer: A

172) $0.30x - 0.20(60 + x) \le -0.15(60)$

A) $x \le 30$ B) $x \ge 40$ C) $x \ge 15$ D) $x \le 20$

Answer: A

173) $0.07x + 0.08(600 - x) > 0.49x$

A) $x < 96$ B) $x > 192$ C) $x < 24$ D) $x > 240$

Answer: A

174) $1.7(0.4 - x) - 0.3 > 3.6(x - 0.4)$ (Round to two decimal places if necessary)

A) $x > 0.34$ B) $x < 0.34$ C) $x < 0.96$ D) $x > 0.96$

Answer: B

175) $\frac{2x-1}{4} + 3 > \frac{1}{3}x + 4$

A) $x > \frac{15}{2}$ B) $x > \frac{3}{2}$ C) $x > \frac{13}{2}$ D) $x > 2$

Answer: A

Describe the situation with a linear inequality and then solve the inequality.

176) A certain car has a weight limit for all passengers and cargo of 1040 pounds. The four passengers in the car weigh an average of 150 pounds. Use an inequality to find the weight of the cargo that the car can handle.

A) at most 6 pounds B) at most 890 pounds

C) at most 440 pounds D) at most 520 pounds

Answer: C

177) A certain store has a fax machine available for use by its customers. The store charges $1.85 to send the first page and $0.60 for each subsequent page. Use an inequality to find the number of pages that can be faxed for $4.25

A) at most 8 pages B) at most 3 pages C) at most 5 pages D) at most 42 pages

Answer: C

178) An archery set containing a bow and three arrows costs $43. Additional arrows can be purchased for $10 each. Jerry has $193 to spend on the set and additional arrows. Including the arrows in the set, what is the total number of arrows Jerry can purchase?

A) at most 19 arrows B) at most 15 arrows C) at most 18 arrows D) at most 4 arrows

Answer: C

179) When making a long distance call from a certain pay phone, the first three minutes of a call cost $1.25. After that, each additional minute or portion of a minute of that call costs $0.35. Use an inequality to find the number of minutes one can call long distance for $3.70.

A) at most 7 minutes B) at most 3 minutes C) at most 11 minutes D) at most 10 minutes

Answer: D

180) It takes 14 minutes to set up a candy making machine. Once the machine is set up, it produces 12 candies per minute. Use an inequality to find the number of candies that can be produced in 2 hours if the machine has not yet been set up.

A) at most 1272 candies B) at most 336 candies
C) at most 24 candies D) at most 1512 candies

Answer: A

181) ABC phone company charges $23 per month plus 3¢ per minute of phone calls. XYZ phone company charges $19 per month plus 5¢ per minute of phone calls. How many minutes of phone calls should be made each month to make XYZ phone company a better deal?

A) more than 200 minutes B) more than 20 minutes
C) less than 200 minutes D) less than 20 minutes

Answer: C

182) David has $17,000 to invest. He invests $12,000 in a mutual fund that pays 12% annual simple interest. If he wants to make at least $2200 in yearly interest, at what minimum rate does the remainder of the money need to be invested?

A) 15.2% B) 13.2% C) 14.2% D) 17.2%

Answer: A

183) Lauren earns $2 an hour selling encyclopedias door-to-door. She also earns $28 in commission per set of encyclopedias sold. To pay her rent this week, she must earn at least $130, and she only has time to work 9 hours. How many sets of encyclopedias must Lauren sell this week in order to make her rent?

A) She would have to sell at least 3 sets of encyclopedias.
B) She would have to sell at least 4 sets of encyclopedias.
C) She would have to sell at least 5 sets of encyclopedias.
D) She would have to sell at least 6 sets of encyclopedias.

Answer: B

184) Every Sunday, Jarod buys a loaf of fresh bread for his family from the corner bakery for $3.00. The local department store has a sale on breadmakers for $71. If the bread-making supplies cost $0.71 per week, for how many weeks would Jarod have to bake a loaf of bread at home before the breadmaker becomes more cost effective?

A) at least 33 weeks B) at least 34 weeks C) at least 32 weeks D) at least 31 weeks

Answer: C

Describe the situation with a linear inequality and then solve the inequality.

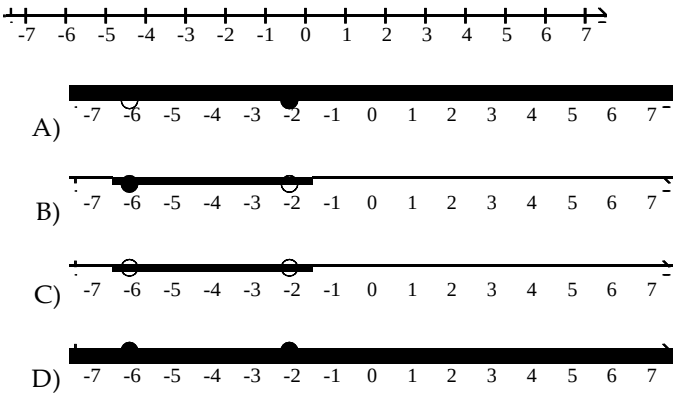
185) A standard train ticket in a certain city costs $2.50 per ride. People who use the train also have the option of purchasing a frequent rider pass for $18.75 each month. With the pass, a ticket costs only $1.75 per ride. Use an inequality to determine the number of train rides in a month for which purchasing the monthly pass is more economical than purchasing the standard train ticket.

A) 26 or more times B) 25 or more times C) 27 or more times D) 24 or more times

Answer: A

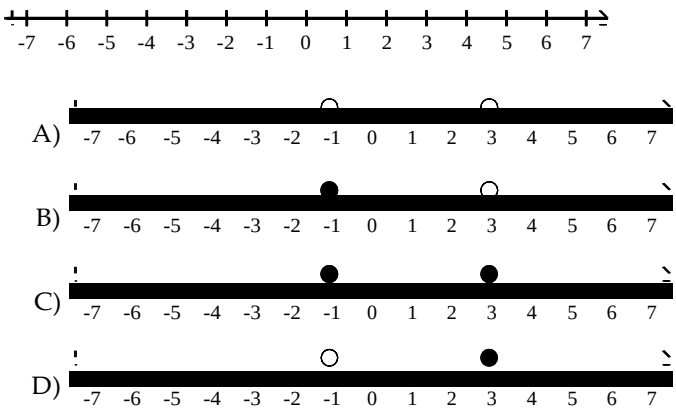
Graph the values of x that satisfy the given conditions.

186) $-6 \leq x \leq -2$



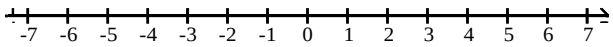
Answer: D

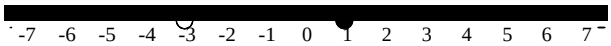
187) $-1 < x < 3$



Answer: A

188) $-3 \leq x < 1$



A) 

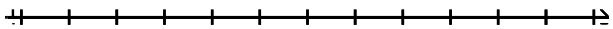
B) 

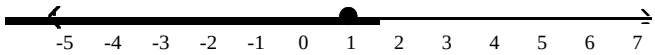
C) 

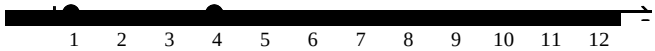
D) 

Answer: C

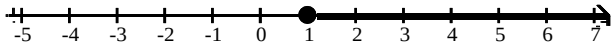
189) $x \leq 4$ and $x \leq 1$



A) 

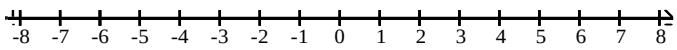
B) 

C) 

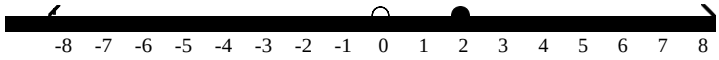
D) 

Answer: A

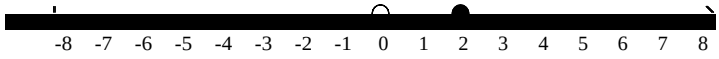
190) $0 \leq x$ and $x < 2$



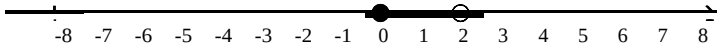
A)



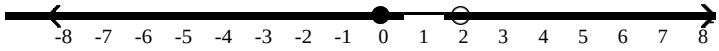
B)



C)

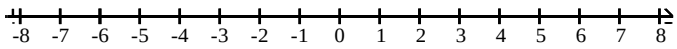


D)

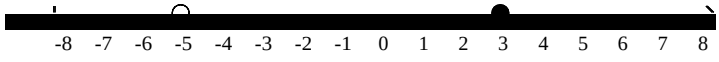


Answer: C

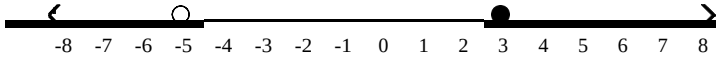
191) $-5 \leq x$ and $x < 3$



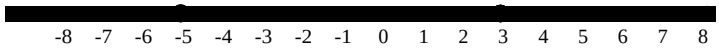
A)



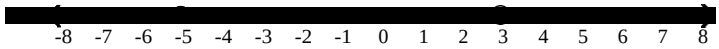
B)



C)

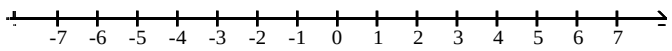


D)

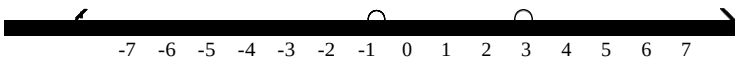


Answer: C

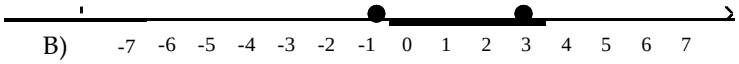
192) $-\frac{2}{3} \leq x \leq 3$



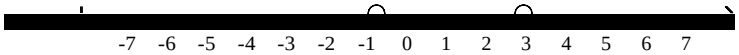
A)



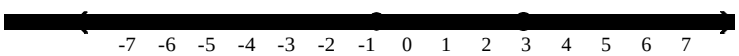
B)



C)



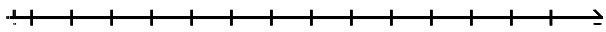
D)



Answer: B

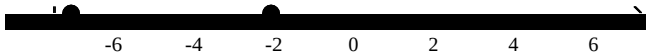
Graph the values of x that satisfy the conditions given.

193) $x \leq 2$ or $x \geq 7$



A)

B)



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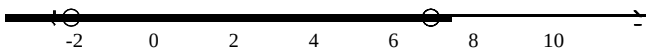
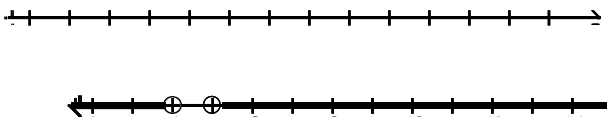


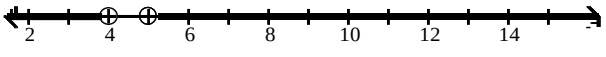
D)

Answer: D

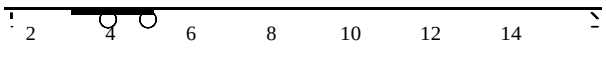
194) $x > 5$ or $x < 4$



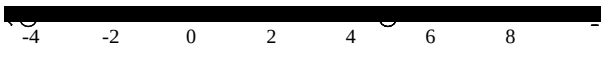
A)



B)



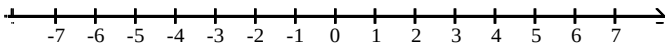
C)



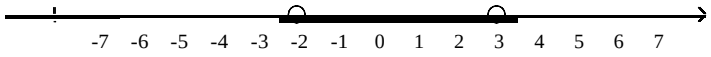
D)

Answer: A

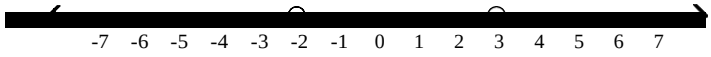
195) $x \leq -2$ or $x > 3$



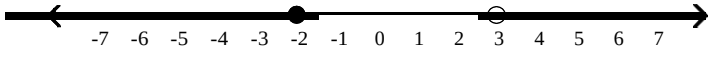
A)



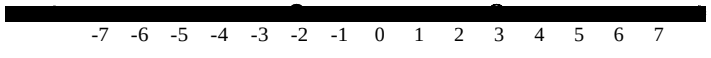
B)



C)

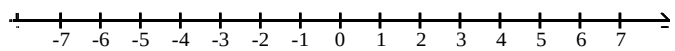


D)

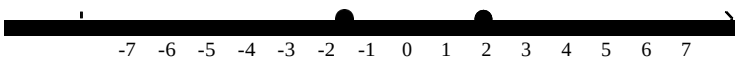


Answer: C

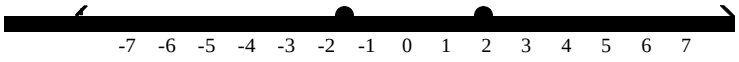
196) $x \leq -\frac{3}{2}$ or $x \geq 2$



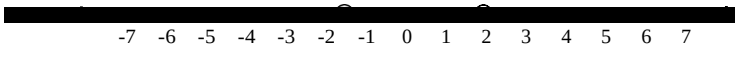
A)



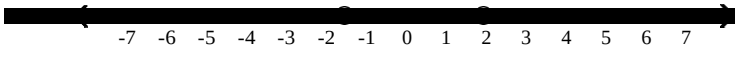
B)



C)



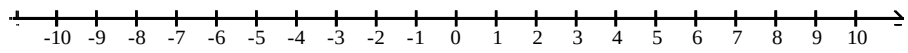
D)



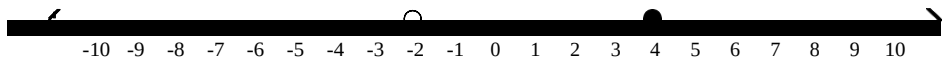
Answer: B

Solve for x and graph the results.

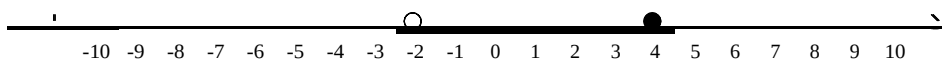
197) $6x + 1 \leq 25$ and $x > -2$



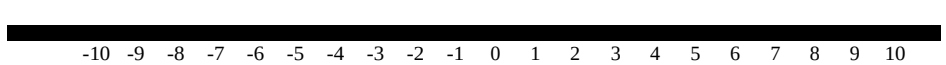
A)



B)

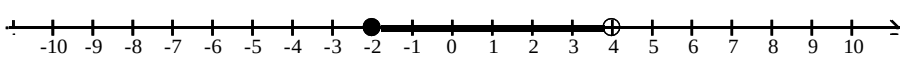


C)



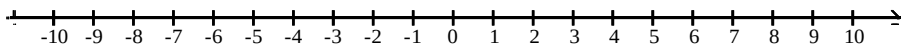
no solution

D)

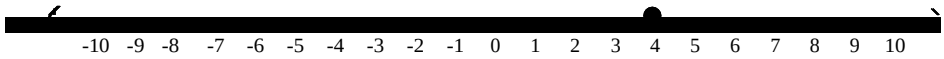


Answer: B

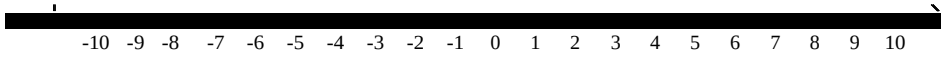
198) $6x + 5 \geq 29$ or $x + 5 < 0$



A)

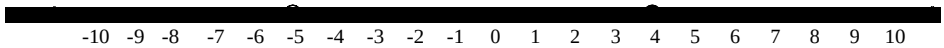


B)

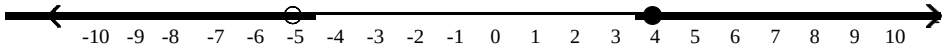


no solution

C)

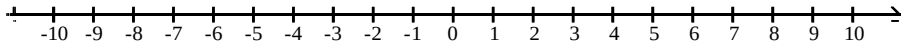


D)

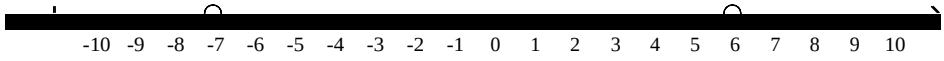


Answer: D

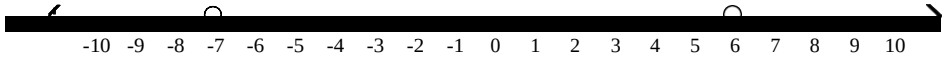
199) $3x + 9 < -12$ or $2x + 8 > 20$



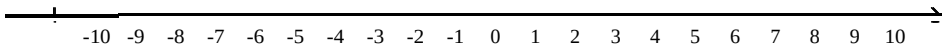
A)



B)

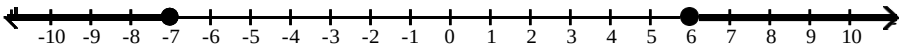


C)



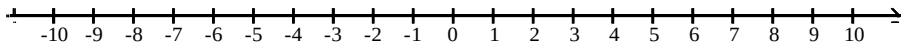
no solution

D)

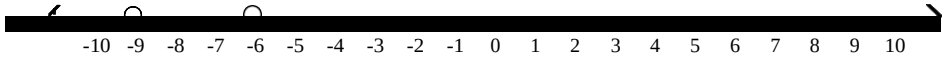


Answer: B

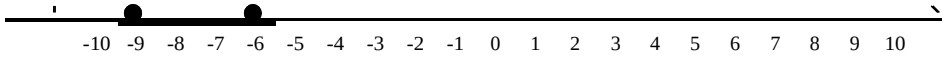
200) $x \leq -9$ and $x \geq -6$



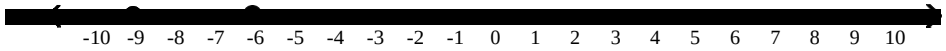
A)



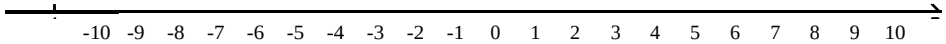
B)



C)



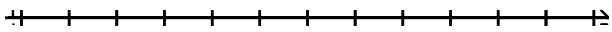
D)



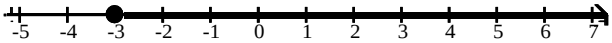
no solution

Answer: D

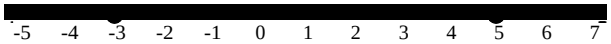
201) $x \leq 5$ and $x \leq -3$



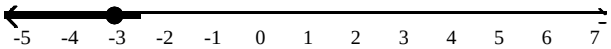
A)



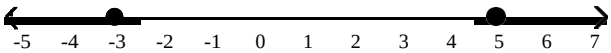
B)



C)

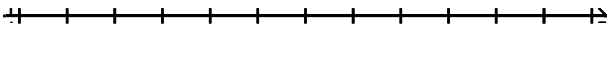


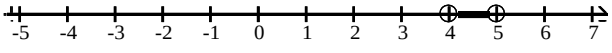
D)

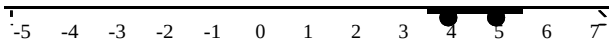


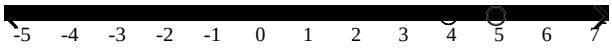
Answer: C

202) $5x < 25$ and $x + 5 > 9$



A) 

B) 

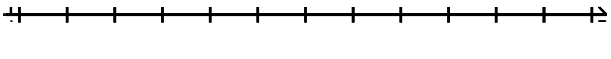
C) 

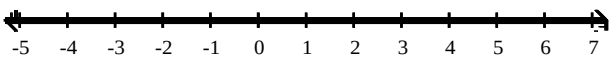
D) 

no solution

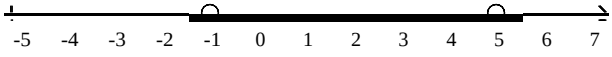
Answer: A

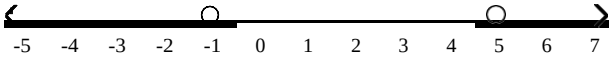
203) $7x < 35$ or $x + 7 > 6$

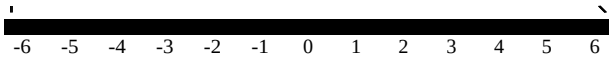


A) 

all real numbers

B) 

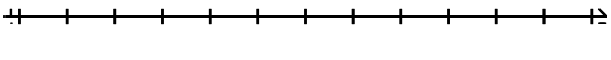
C) 

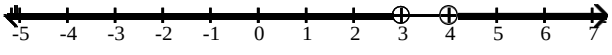
D) 

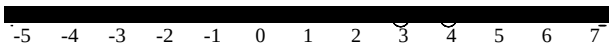
no solution

Answer: A

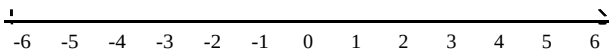
204) $-6x < -24$ and $x + 6 > 9$



A) 

B) 

C) 

D) 

no solution

Answer: C

Solve the compound inequality.

205) $-4x < -20$ and $x + 4 > 8$

A) $x < 4$ or $x > 5$ B) $x > 5$ C) No solution D) $4 < x < 5$

Answer: B

206) $x + 9 < 6$ and $-9x < 18$

A) $-3 < x < -2$ B) $x < -3$ or $x > -2$ C) No solution D) $x < -3$

Answer: C

207) $12x - 8 < 4x$ or $-4x \leq -12$

A) $1 \leq x \leq 3$ B) $1 < x \leq 3$ C) No solution D) $x < 1$ or $x \geq 3$

Answer: D

208) $-5x + 1 \geq 11$ or $4x + 3 \geq -13$

A) $-4 \leq x < -2$ B) All real numbers C) $-4 \leq x \leq -2$ D) $x \geq -2$

Answer: B

209) $2x - 6 > 4$ and $x + 3 < 11$

A) $5 < x < 14$ B) $x < 5$ or $x > 8$ C) No solution D) $5 < x < 8$

Answer: D

210) $6x + 7 \geq 3$ and $3x - 4 < 6$

A) $x \leq -\frac{2}{3}$ or $x > \frac{10}{3}$ B) $-\frac{2}{3} \leq x < \frac{2}{3}$ C) $-\frac{2}{3} \leq x < \frac{10}{3}$ D) No solution

Answer: C

211) $4x + 8 < 2$ and $4x - 1 > 9$

A) $-\frac{3}{2} < x < \frac{5}{2}$ B) $-\frac{3}{2} < x < 2$ C) No solution D) $x < -\frac{3}{2}$ or $x > \frac{5}{2}$

Answer: C

212) $9x + 7 \leq 3$ or $4x - 4 > 6$

A) $-\frac{4}{9} \leq x < \frac{5}{2}$ B) $x \leq -\frac{4}{9}$ or $x > \frac{5}{2}$ C) $x \leq -\frac{4}{9}$ or $x > \frac{1}{2}$ D) No solution

Answer: B

213) $2x - 1 > 9$ and $3 - x \geq -7$

A) $x \geq 10$ B) All real numbers C) No solution D) $5 < x \leq 10$

Answer: D

214) $9x + 7 \leq -29$ and $3x - 5 \geq -17$

A) $x = -4$ B) All real numbers C) No solution D) $x \leq -4$

Answer: A

215) $-0.5x + 3.2 > 0.3x$ or $0.2x + 0.1 \leq 1.3$

A) $x \geq 6$ or $x < 4$ B) $x \leq 6$ C) $x < 4$ D) All real numbers

Answer: B

216) $\frac{7x}{3} + 2 \geq 3$ and $x - \frac{3}{7} \geq \frac{53}{7}$

A) $\frac{3}{7} \leq x \leq 8$ B) $x \geq 8$ C) $x \geq \frac{3}{7}$ D) $-\frac{3}{7} \leq x \leq 8$

Answer: B

217) $\frac{7x + 7}{4} < 3$ or $\frac{2x - 3}{8} \leq 9$

A) $x < \frac{5}{7}$ or $x \geq \frac{75}{2}$ B) $x < \frac{5}{7}$ C) $\frac{5}{7} < x \leq \frac{75}{2}$ D) $x \leq \frac{75}{2}$

Answer: D

218) $\frac{7x + 7}{2} > 4$ or $\frac{-3 - 3x}{8} > 9$

A) $x < -25$ B) $-25 < x < \frac{1}{7}$ C) No solution D) $x > \frac{1}{7}$ or $x < -25$

Answer: D

219) $20x - 2 \geq 9x + 31$ and $x - 4 \leq -1$

A) No solution B) All real numbers C) $x = 3$ D) $3 \leq x \leq 4$

Answer: C

220) $5x - 2 > 13$ or $5 - 3(x - 2) > 3 - 2x$

A) $x < 3$ B) All real numbers C) No solution D) $x > 3$

Answer: B

Solve the problem.

221) The child-proof cap of a medicine bottle will not function properly if the radius r of the cap is more than 59.7 millimeters or less than 59.1 millimeters. Express this as an inequality.

A) $59.1 < r < 59.7$ B) $r \leq 59.1$ or $r \geq 59.7$ C) $r < 59.1$ or $r > 59.7$ D) $59.1 \leq r \leq 59.7$

Answer: C

222) The daily number of visitors v to an amusement park was always at least 804 but never more than 1121. Express this as an inequality.

A) $804 < v < 1121$ B) $v < 804$ or $v > 1121$ C) $v \leq 804$ or $v \geq 1121$ D) $804 \leq v \leq 1121$

Answer: D

223) The formula $C = 1.5x + 16$ represents the estimated future cost of yearly attendance at State University, where C is the cost in thousands of dollars x years after 2002. Use a compound inequality to determine when the attendance costs will range from 28 to 34 thousand dollars.

A) From 2010 to 2014 B) From 2009 to 2013 C) From 2011 to 2013 D) From 2011 to 2015

Answer: A

224) The formula for converting Fahrenheit temperatures to Celsius temperatures is $C = \frac{5}{9}(F - 32)$. Use this formula to solve the problem. In a certain city, the average temperature ranges from -16° to 47° Celsius. Find an inequality that represents the range of Fahrenheit temperatures. If necessary, round to the nearest tenth of a degree.

A) $3.2° \le F \le 116.6°$ B) $-60.8° \le F \le 52.6°$ C) $-28.8° \le F \le 84.6°$ D) $23.1° \le F \le 58.1°$

Answer: A

225) Cindy has scores of 74, 81, 84, and 89 on her biology tests. Use a compound inequality to find the range of scores she can make on her final exam to receive a C in the course. The final exam counts as two tests, and a C is received if the course average is between 70 and 79.

A) $11 \le$ final score ≤ 33.5 B) $46 \le$ final score ≤ 73

C) $92 \le$ final score ≤ 146 D) $70 \le$ final score ≤ 79

Answer: B

226) At one point the exchange equation for converting American dollars into Japanese yen was $Y = 129(d - 4)$ where d is the number of American dollars, Y is the number of yen, and $4 is a one-time bank fee charged for currency conversions. Use this equation to solve the following problem.
Ariel is traveling to Japan for 3 weeks and has been advised to have between 19,000 and 30,000 yen for spending money for each week he is there. Write an inequality that represents the number of American dollars he will need to bring to the bank to exchange money for this 3-week period.

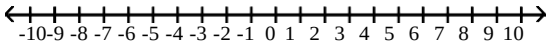
A) $\$441.89 \le d \le \$697.71$ B) $\$453.86 \le d \le \$709.67$

C) $\$445.86 \le d \le \$701.67$ D) $\$441.95 \le d \le \$697.77$

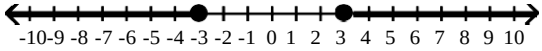
Answer: C

Solve and graph the solutions.

227) $|x| < 3$



A)



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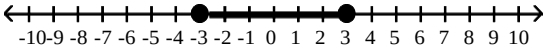
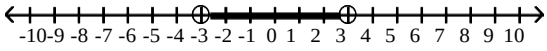
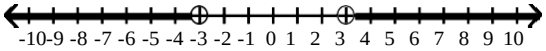


C)

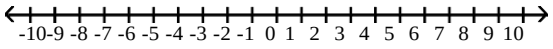


D)

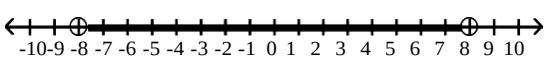


Answer: C

228) $|x| \le 8$



A)



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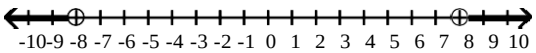
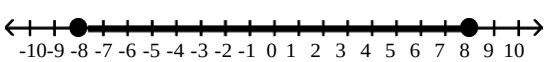
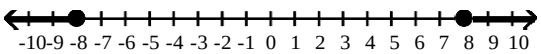


C)



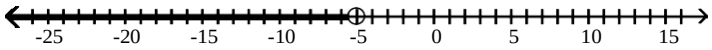
D)



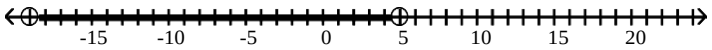
Answer: C

229) $|x - 7| < 12$

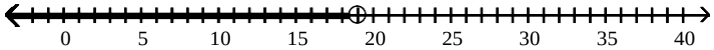
A)



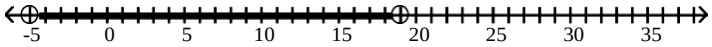
B)



C)

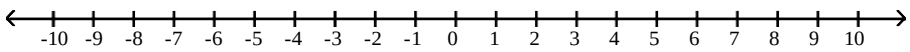


D)

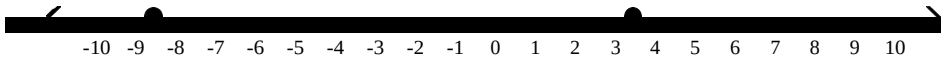


Answer: D

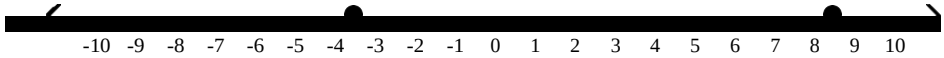
230) $|x + 2.5| \leq 6$



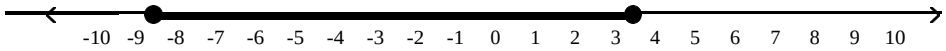
A)



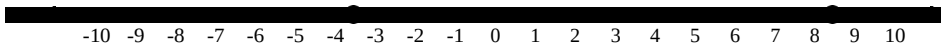
B)



C)

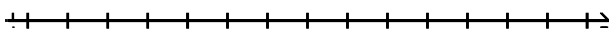


D)

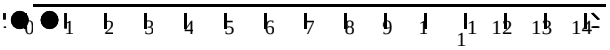


Answer: C

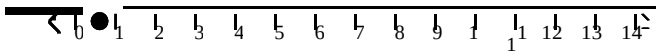
231) |8x - 2| ≤ 3



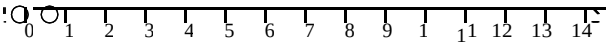
A)



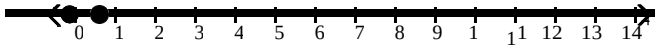
B)



C)



D)



Answer: A

Solve for x.

232) |x - 6| < 16

A) x < 22 B) -22 < x < 10 C) -10 < x < 22 D) x < -10

Answer: C

233) |2x - 4 | ≤ 20

A) x ≤ -12 or x ≥ 8 B) - 8 ≤ x ≤ 12 C) x ≤ - 8 or x ≥ 12 D) -12 ≤ x ≤ 8

Answer: B

234) |3x - 2| ≤ 3

A) $-\frac{1}{3} < x < \frac{5}{3}$ B) $x \leq \frac{5}{3}$ C) $-\frac{1}{3} \leq x \leq \frac{5}{3}$ D) $x \leq -\frac{1}{3}$ or $x \geq \frac{5}{3}$

Answer: C

235) |12 - 3x| ≤ 15

A) -9 ≤ x ≤ 1 B) x ≤ - 1 or x ≥ 9 C) - 1 ≤ x ≤ 9 D) x ≤ -9 or x ≥ 1

Answer: C

236) |0.9x + 0.7| ≤ 1

A) -1.889 ≤ x ≤ 0.333 B) -0.889 ≤ x ≤ -0.667 C) 0.667 ≤ x ≤ 0.889 D) -0.333 ≤ x ≤ 1.889

Answer: A

237) |0.8 - 0.4x |≤ 6

A) -17 ≤ x ≤ 17 B) x ≥ -13 C) -17 ≤ x ≤ 13 D) -13 ≤ x ≤ 17

Answer: D

238) $\left|x + \frac{1}{4}\right| \leq \frac{3}{4}$

A) $x \leq -\frac{1}{2}$ or $x \geq 1$ B) $-\frac{1}{2} \leq x \leq 1$ C) $x \leq -1$ or $x \geq \frac{1}{2}$ D) $-1 \leq x \leq \frac{1}{2}$

Answer: D

239) $\left|\frac{1}{3}x + 10\right| < 11$

A) $-63 < x < 3$ B) $x < 4$ or $x > \frac{13}{3}$ C) $x < -63$ or $x > 3$ D) $4 < x < \frac{13}{3}$

Answer: A

240) $\left|\frac{3}{4}(x - 11)\right| \leq 2$

A) $\frac{19}{2} \leq x \leq \frac{25}{2}$ B) $x \leq \frac{25}{3}$ or $x \geq \frac{41}{3}$ C) $\frac{25}{3} \leq x \leq \frac{41}{3}$ D) $x \leq \frac{19}{2}$ or $x \geq \frac{25}{2}$

Answer: C

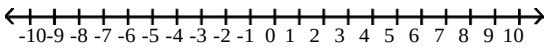
241) $\left|\frac{6x + 3}{8}\right| < 7$

A) $-\frac{59}{6} < x < \frac{53}{6}$ B) $x < -\frac{53}{6}$ or $x > \frac{59}{6}$ C) $-\frac{53}{6} < x < \frac{59}{6}$ D) $x < -\frac{59}{6}$ or $x > \frac{53}{6}$

Answer: A

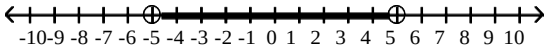
Solve and graph the solutions.

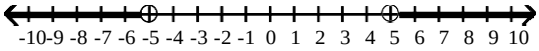
242) $|x| \geq 5$



A)

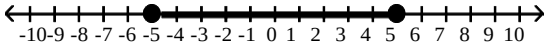
B)

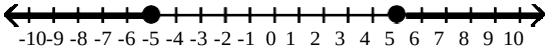




C)

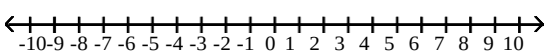
D)





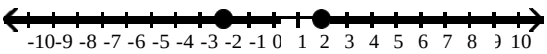
Answer: D

243) $|x| > 2$

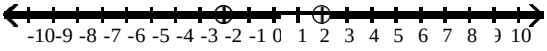


A)

B)


-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

C)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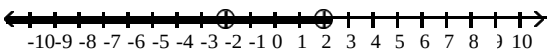
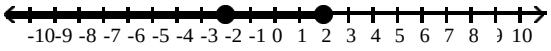

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

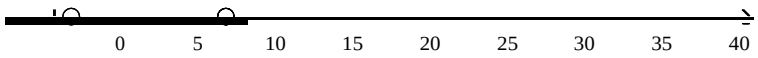
D)


-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

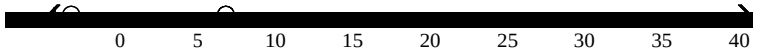
Answer: C

244) $|x - 2| > 5$

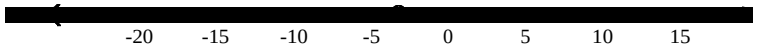
A)



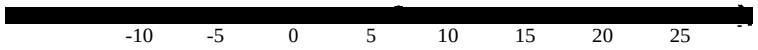
B)



C)

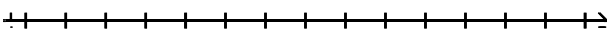


D)

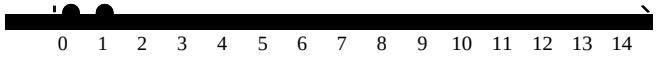


Answer: B

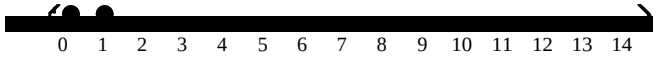
245) $|7x - 5| \geq 3$



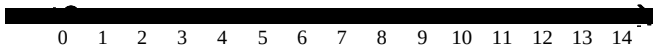
A)



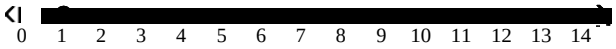
B)



C)



D)



Answer: B

Solve for x.

246) $|x - 12| \geq 4$

A) $x \leq 8$ or $x \geq 16$ B) $-16 \leq x \leq -8$ C) $x \leq -16$ or $x \geq -8$ D) $8 \leq x \leq 16$

Answer: A

247) $|2x - 6| > 14$

A) $x < -4$ or $x > 10$ B) $-4 < x < 10$ C) $x < -10$ or $x > 4$ D) $-10 < x < 4$

Answer: A

248) $|6x + 3| \geq 4$

A) $x \leq -\frac{7}{6}$ or $x \geq \frac{1}{6}$ B) $x \leq -\frac{7}{6}$ or $x > \frac{1}{6}$ C) $x \geq \frac{1}{6}$ D) $-\frac{7}{6} \leq x \leq \frac{1}{6}$

Answer: A

249) $|12 - 4x| > 28$

A) $x < -4$ or $x > 10$ B) $-10 < x < 4$ C) $-4 < x < 10$ D) $x < -10$ or $x > 4$

Answer: A

250) $|0.7x + 0.8| \geq 1$

A) $-2.571 \leq x \leq 0.286$ B) $x \leq -2.571$ or $x \geq 0.286$

C) $x \leq -0.286$ or $x \geq 2.571$ D) $-0.286 \leq x \leq 2.571$

Answer: B

251) $|0.8 - 0.4x| > 6$

A) $-17 < x < 13$ B) $x < -13$ or $x > 17$ C) $-13 < x < 17$ D) $x < -17$ or $x > 13$

Answer: B

252) $\left|\frac{1}{55}x + \frac{6}{11}\right| \geq \frac{8}{11}$

A) $-70 \leq x \leq 10$ B) $x \leq -10$ or $x \geq 70$ C) $-10 \leq x \leq 70$ D) $x \leq -70$ or $x \geq 10$

Answer: D

253) $\left|9 - \frac{1}{2}x\right| > 12$

A) $x > 21$ or $x < -3$ B) $-6 < x < 42$ C) $-3 < x < 21$ D) $x > 42$ or $x < -6$

Answer: D

254) $\left|\frac{6}{7}(x - 8)\right| \geq 5$

A) $\frac{13}{3} \leq x \leq \frac{43}{3}$ B) $\frac{13}{6} \leq x \leq \frac{83}{6}$ C) $x \leq \frac{13}{6}$ or $x \geq \frac{83}{6}$ D) $x \leq \frac{13}{3}$ or $x \geq \frac{43}{3}$

Answer: C

255) $\left|\frac{9x + 5}{7}\right| > 10$

A) $x < -\frac{25}{3}$ or $x > \frac{65}{9}$ B) $-\frac{65}{9} < x < \frac{25}{3}$ C) $-\frac{25}{3} < x < \frac{65}{9}$ D) $x < -\frac{65}{9}$ or $x > \frac{25}{3}$

Answer: A

Solve.

256) The length ℓ of a metal rod used in manufacturing cars must not differ from the standard s by more than 0.3 inches. The manufacturing engineers express this as $|\ell - s| \leq 0.3$. Find the limits of ℓ if the standard s is 14.2.

A) $14.5 \le \ell \le 14.8$ B) $\ell \le 14.5$ or $\ell \ge 14.8$ C) $13.9 \le \ell \le 14.5$ D) $\ell \le 13.9$ or $\ell \ge 14.5$

Answer: C

257) The radius r of a plastic tube used in manufacturing a child's toy must not differ from the standard s by more than 3 millimeters. The manufacturing engineers express this as $|r - s| \le 3$. Find the limits of r if the standard s is 39.

A) $36 \le r \le 42$ B) $r \le 33$ or $r \ge 36$ C) $r \le 36$ or $r \ge 42$ D) $33 \le r \le 36$

Answer: A

258) $10x - 6 = 3 - 3x$

A) $x = -\frac{13}{9}$ B) $x = -\frac{7}{3}$ C) $x = \frac{13}{9}$ D) $x = \frac{9}{13}$

Answer: D

259) $4(3 - 5x) = 12 - 3(x - 1)$

A) $x = -\frac{27}{23}$ B) $x = -\frac{3}{17}$ C) $x = \frac{1}{2}$ D) $x = \frac{1}{17}$

Answer: B

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

A) $x = \frac{46}{17}$ B) $x = 2$ C) $x = \frac{46}{19}$ D) $x = \frac{14}{19}$

Answer: C

261) $1.4x - 3.3 = 0.8x - 1.8$

A) $x = -0.4$ B) $x = 2.5$ C) $x = 2.6$ D) $x = 2.75$

Answer: B

262) Solve for n. $M = a + c(n - 5)$

A) $n = \frac{M - a}{c}$ B) $n = \frac{M - a + 5c}{c}$ C) $n = \frac{M + a - c}{c}$ D) $n = \frac{M - a - 5c}{c}$

Answer: B

263) Solve for b. $A = \frac{1}{2}bh$

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

Answer: D

264) Solve $V = \frac{1}{3}b^2h$ for h, then evaluate h when $V = 363\ cm^3$ and $b = 11$ cm.

A) $h = \frac{V}{3b^2}$; 3 cm B) $h = \frac{3V}{b^2}$; 9 cm C) $h = \frac{V}{81}$; 81 cm D) $h = \frac{3V}{27}$; 27 cm

Answer: B

265) Solve for p. $Q = \frac{1}{p} + 6s - \frac{1}{}$

$3b^2$ b^2

2 6

A) $p = \frac{6Q - 36s + 1}{3}$ B) $p = \frac{6Q + 36s - 1}{3}$ C) $6Q - 36s + 1$ D) $p = \frac{6Q - 6s + 1}{3}$

Answer: A

266) $|8x + 4| = 3$

A) No solution B) $x = -\frac{1}{4}, -\frac{7}{4}$ C) $x = -\frac{1}{8}, -\frac{7}{8}$ D) $x = \frac{1}{8}, \frac{7}{8}$

Answer: C

267) $\left|2 + \frac{1}{2}x\right| + 5 = 8$

A) $x = -\frac{5}{2}, \frac{1}{2}$ B) No solution C) x = - 30, 2 D) x = - 10, 2

Answer: D

Use an algebraic equation to find a solution.

268) A triangle has a perimeter of 34 meters. The length of the second side is 5 meters more the length of the first side. The third side is 3 meters less than twice the first side. How long is each side?

A) 1st side = 9 m, 2nd side = 13 m, 3rd side = 13 m
B) 1st side = 8 m, 2nd side = 13 m, 3rd side = 13 m
C) 1st side = 8 m, 2nd side = 13 m, 3rd side = 14 m
D) 1st side = 8 m, 2nd side = 14 m, 3rd side = 13 m

Answer: B

269) Employment statistics show that 22,410 of the residents of Bear Valley were unemployed last month. This was a decrease of 17% from the previous month. How many residents were unemployed in the previous month?

A) 27,000 B) 131,824 C) 3810 D) 26,220

Answer: A

270) A chemist needs 140 milliliters of a 52% solution but has only 28% and 56% solutions available. How many milliliters of each should be mixed to get the desired solution?

A) 30 ml of 28%; 110 ml of 56%
B) 110 ml of 28%; 30 ml of 56%
C) 120 ml of 28%; 20 ml of 56%
D) 20 ml of 28%; 120 ml of 56%

Answer: D

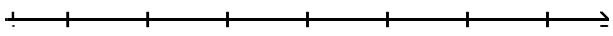
271) A college student earned $5000 during summer vacation working as a waiter in a popular restaurant. Part was invested at 9% simple interest and the remainder at 6% simple interest. At the end of one year, the student had earned $405 interest. How much was invested at 9%?

A) $833 B) $3500 C) $1500 D) $2500

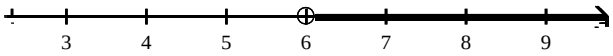
Answer: B

Solve and graph.

272) $-9x - 10 > -10x - 4$

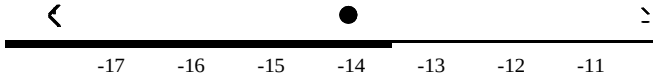


A) $x > 6$

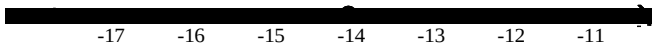


B) $x < 6$

C) $x \leq -14$

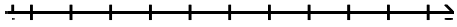


D) $x \geq -14$

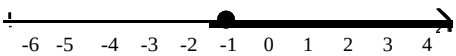


Answer: A

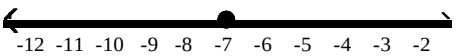
273) $-\frac{1}{3} + \frac{1}{5}(5 - 3x) \geq \frac{1}{3}x + \frac{6}{5}$



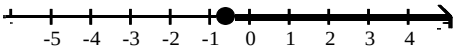
A) $x \leq -1$



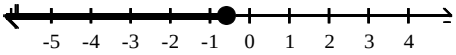
B) $x \geq -7$



C) $x \geq -\frac{4}{7}$



D) $x \leq -\frac{4}{7}$



Answer: D

Find the values of x that satisfy the given conditions.

274) $12 \leq 4x + 4 \leq 24$

A) $-5 \leq x \leq -2$ B) $2 < x < 5$ C) $-5 < x < -2$ D) $2 \leq x \leq 5$

Answer: D

275) $2x - 5 \leq 3$ or $-x + 4 < -7$

A) $-1 \leq x < 11$ B) $x \leq 4$ or $x > 11$ C) $4 \leq x < 11$ D) $x \leq -1$ or $x > 11$

Answer: B

Solve the absolute value inequality.

276) $|2x - 8| \leq 14$

A) $-11 \leq x \leq 3$ B) $-3 \leq x \leq 11$ C) $x \leq -3$ or $x \geq 11$ D) $x \leq -11$ or $x \geq 3$

Answer: B

277) $|2x + 4| \geq 3$

A) $-\frac{7}{2} < x < -\frac{1}{2}$

B) $-\frac{7}{2} \leq x \leq -\frac{1}{2}$

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

D) $x \leq -\frac{7}{2}$ or $x \geq -\frac{1}{2}$

Answer: D