Elementary and Intermediate Algebra Graphs and Models 5th edition Bittinger Test Bank

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

What step would be used to solve the equation?

1) $8x = 80$

A) Multiply both sides by 8.
B) Divide both sides by 8.
C) Subtract 8 from both sides.
D) Add 8 to both sides.

Answer: B

2) $x + 2 = 5$

A) Divide both sides by 2.
B) Multiply both sides by 2.
C) Add 2 to both sides.
D) Subtract 2 from both sides.

Answer: D

3) $\frac{1}{9}x = 72$

A) Multiply both sides by 9.
B) Subtract 9 from both sides.
C) Add 9 to both sides.
D) Divide both sides by 9.

Answer: A

4) $x - 10 = 13$

A) Subtract 10 from both sides.
B) Add 10 to both sides.
C) Divide both sides by 10.
D) Multiply both sides by 10.

Answer: B

Decide if the given number is a solution to the given equation.

5) $3x = 12;\ 8$

A) No
B) Yes

Answer: A

6) $\frac{x}{6} = 9; 54$

A) No
B) Yes

Answer: B

7) $p + 11 = 12;\ 1$

A) Yes
B) No

Answer: A

8) $p - 3 = 1;\ 4$

A) No
B) Yes

Answer: B

9) $4m + 9 = 31;\ 5$

A) Yes
B) No

Answer: B

10) $9p + 5p - 7 = 21;\ 2$

A) Yes
B) No

Answer: A

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Solve using the addition principle.

11) $s - 6 = 1$

A) 7 B) –7 C) 5 D) –5

Answer: A

12) $a + 5 = 9$

A) 4 B) 14 C) –14 D) –4

Answer: A

13) $z - \frac{5}{46} = 0$

A) $-\frac{5}{46}$ B) $\frac{46}{5}$ C) $-\frac{46}{5}$ D) $\frac{5}{46}$

Answer: D

14) $7 = s + 4$

A) 11 B) 3 C) –11 D) –3

Answer: B

15) $24 = z - 27$

A) –3 B) –51 C) 3 D) 51

Answer: D

16) $x - 8.44 = 0$

A) 7.44 B) 8.44 C) –7.44 D) –8.44

Answer: B

17) $z - 2 = 15$

A) 17 B) 13 C) –17 D) –13

Answer: A

18) $-14.5 - s = 24.0$

A) –38.5 B) –9.5 C) 9.5 D) 38.5

Answer: A

19) $x + \frac{5}{11} = \frac{10}{11}$

A) $-\frac{5}{11}$ B) $\frac{5}{22}$ C) $\frac{15}{11}$ D) $\frac{5}{11}$

Answer: D

20) $x - \frac{5}{9} = \frac{14}{27}$

A) $-\frac{1}{27}$ B) $\frac{29}{36}$ C) $\frac{19}{27}$ D) $\frac{29}{27}$

Answer: D

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Solve using the multiplication principle.

21) $\frac{x}{5} = -9$

A) −5 B) −4 C) −2 D) −45

Answer: D

22) $-2 = \frac{a}{7}$

A) 5 B) −1 C) 4 D) −14

Answer: D

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

A) 15 B) 0 C) 7 D) 8

Answer: A

24) $-4a = 28$

A) 1 B) −7 C) 32 D) −32

Answer: B

25) $-49 = 7k$

A) 1 B) 56 C) −56 D) −7

Answer: D

26) $-31.0 = -6.2c$

A) 24.8 B) 2.0 C) −24.8 D) 5.0

Answer: D

27) $-8x = -24$

A) −16 B) 2 C) 16 D) 3

Answer: D

28) $6b = -90$

A) −96 B) 96 C) −15 D) 1

Answer: C

29) $\frac{3}{4}x = 18$

A) $\frac{69}{4}$ B) $\frac{27}{2}$ C) $\frac{75}{4}$ D) 24

Answer: D

30) $\frac{-9x}{8} = -\frac{3}{4}$

A) $\frac{27}{32}$ B) $\frac{3}{2}$ C) $\frac{3}{8}$ D) $\frac{2}{3}$

Answer: D

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Solve the equation.

31) $x + 857.181 = 598.857$

A) 0.699 B) −258.324 C) 1.431 D) 1456.038

Answer: B

32) $-852.334 = -541.755 + x$

A) −1394.089 B) 1.573 C) −310.579 D) 0.636

Answer: C

33) $280.623x = -922.119$

A) −0.304 B) −258,767.8 C) −3.286 D) −1202.742

Answer: C

34) $\frac{x}{735.076} = -115.443$

A) 619.633 B) −0.157 C) −84,859.379 D) −6.367

Answer: C

Choose the word or statement that answers the question.

35) What word means to find all of the solutions of an equation?

A) Solve B) Eliminate C) Solution D) Equivalent

Answer: A

36) What does the equation a = b mean?

A) a and b stand for the same number in certain circumstances.
B) a and b stand for the same number.
C) a and b sometimes stand for the same number.
D) a and b never stand for the same number.

Answer: B

37) When you use the addition principle to solve an equation, what is true?

A) You add and subtract the same number to both sides of the equation.
B) You add or subtract the same number to both sides of the equation.
C) You add the same number to both sides of the equation.
D) You subtract the same number from both sides of the equation.

Answer: B

38) What is the principle used to solve $\frac{7}{2}x = -4$?

A) Opposite principle B) Multiplication principle
C) Addition principle D) Solution principle

Answer: B

39) What is the principle used to solve $\frac{9}{2} + x = -6$?

A) Multiplication principle B) Multiplicative inverse principle
C) Additive identity principle D) Addition principle

Answer: D

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Select the equivalent equation that could be the next step in finding a solution to the equation.

40) $3x + 8 = 6$

A) $3x = 14$ B) $x = \frac{14}{3}$ C) $x = -\frac{2}{3}$ D) $3x = -2$

Answer: D

41) $5x = 9$

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

Answer: B

42) $6(x - 2) = 6$

A) $6x - 12 = 6$ B) $6x - 2 = 6$ C) $6(x - 2) - 6 = 0$ D) $6(x - 2) + 6 = 0$

Answer: A

43) $2x = 8 + 8x$

A) $\frac{2}{8}x = 8$ B) $10x = 8$ C) $2x - 8x = 8$ D) $\frac{2x}{8x} = 8$

Answer: C

Solve the equation.

44) $6r + 8 = 20$

A) 2 B) 4 C) 10 D) 6

Answer: A

45) $4n - 6 = 30$

A) 9 B) 13 C) 36 D) 32

Answer: A

46) $29 = 8x - 3$

A) 28 B) 24 C) 6 D) 4

Answer: D

47) $43 = 8x + 3$

A) 5 B) 36 C) 2 D) 32

Answer: A

48) $160 = 13x + 17$

A) 4 B) 11 C) 134 D) 130

Answer: B

49) $154 = 11x + 11x$

A) 176 B) 132 C) 7 D) $\frac{1}{7}$

Answer: C

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50) $18x - 10x = 16$

A) $\frac{1}{2}$ B) 8 C) 2 D) 24

Answer: C

Solve the equation. If it is an identity or a contradiction, then state this.

51) $-8y - 9 = 1 + 8y$

A) $-\frac{5}{8}$ B) $\frac{8}{5}$

C) $-\frac{8}{5}$ D) No solution; contradiction

Answer: A

52) $-7w - 7 = 3 - 3w$

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

Answer: B

53) $-9b + 5 + 7b = -3b + 10$

A) -5 B) 5

C) 10 D) No solution; contradiction

Answer: B

54) $-3y + 7 = -2 + 10y$

A) $-\frac{13}{9}$ B) $\frac{7}{5}$ C) $\frac{9}{13}$ D) $\frac{13}{9}$

Answer: C

55) $9r + 8 = -10 - 2r$

A) $\frac{11}{18}$ B) $-\frac{11}{18}$ C) $-\frac{7}{2}$ D) $-\frac{18}{11}$

Answer: D

56) $-5p + 8 = -2 - 10p + 7p$

A) $\frac{1}{5}$ B) $-\frac{1}{5}$

C) 5 D) All real numbers; identity

Answer: C

57) $3y - 8 + y = -5 + 4y - 3y$

A) -13 B) 1 C) $-\frac{13}{2}$ D) $-\frac{13}{3}$

Answer: B

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58) $3x + 3 + 2x = 6x + 3 - x$

A) 0

B) 5

C) $\frac{1}{5}$

D) All real numbers; identity

Answer: D

59) $4x + 3 + 3x = 8x + 2 - x$

A) 0

B) 7

C) $\frac{1}{7}$

D) No solution; contradiction

Answer: D

Solve the equation.

60) $\frac{f}{3} - 3 = 1$

A) 4 B) −4 C) 12 D) −12

Answer: C

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

A) 75 B) −150 C) 150 D) −75

Answer: A

62) $\frac{p}{3} - \frac{3p}{8} = 5$

A) 120 B) −120 C) −115 D) 115

Answer: B

63) $\frac{a}{2} - \frac{1}{2} = -4$

A) 9 B) −9 C) 7 D) −7

Answer: D

64) $-9.8q = -34 - 1.3q$

A) 3.6 B) 4 C) 3.5 D) −42

Answer: B

65) $-3.2q + 1.9 = -11.4 - 1.3q$

A) 4.2 B) −15 C) 7 D) 4.6

Answer: C

66) $-9.2 = y + 4.3$

A) −4.9 B) −13.5 C) 13.5 D) 4.9

Answer: B

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67) $-4.8 = z - 6$

A) -1.2 B) 10.8 C) -10.8 D) 1.2

Answer: D

68) $\frac{15}{14}x + \frac{1}{14}x = 5x + \frac{1}{7} + \frac{13}{14}x$

A) $\frac{1}{67}$ B) $-\frac{1}{67}$ C) $-\frac{2}{67}$ D) $\frac{2}{73}$

Answer: C

69) $\frac{5}{6} + \frac{1}{7}x = 2$

A) $\frac{49}{6}$ B) $-\frac{7}{2}$ C) $\frac{35}{6}$ D) $-\frac{18}{7}$

Answer: A

70) $5(2z - 2) = 9(z + 2)$

A) 28 B) 8 C) -8 D) 13

Answer: A

71) $-9x + 2(-3x - 4) = -16 - 7x$

A) 3 B) -1 C) $\frac{12}{11}$ D) 1

Answer: D

72) $35(x - 140) = 70$

A) 70 B) 142 C) 140 D) 138

Answer: B

73) $7x - (4x - 1) = 2$

A) $\frac{1}{11}$ B) $\frac{1}{3}$ C) $-\frac{1}{11}$ D) $-\frac{1}{3}$

Answer: B

74) $4(7x - 1) = 16$

A) $\frac{15}{28}$ B) $\frac{5}{7}$ C) $\frac{3}{7}$ D) $\frac{17}{28}$

Answer: B

75) $(y - 7) - (y + 6) = 9y$

A) $-\frac{13}{7}$ B) $-\frac{13}{5}$ C) $-\frac{1}{3}$ D) $-\frac{13}{9}$

Answer: D

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76) $\frac{1}{2}(8x - 10) = \frac{1}{4}(20x - 16)$

A) –1 B) $\frac{1}{20}$ C) –20 D) 1

Answer: A

77) $(y - 7) - (y + 4) = 4y$

A) $-\frac{3}{2}$ B) $-\frac{3}{4}$ C) $-\frac{11}{4}$ D) $-\frac{11}{2}$

Answer: C

78) $\frac{2}{3}(10x - \frac{1}{6}) - \frac{3}{4} = \frac{1}{4}$

A) $\frac{1}{30}$ B) $\frac{7}{40}$ C) $\frac{1}{6}$ D) $\frac{9}{80}$

Answer: C

79) $0.5(5x + 15) = 2.9 - (x + 3)$

A) $-\frac{3.002399752e+14}{2.814749767e+14}$ B) $-\frac{76}{35}$ C) $-\frac{59}{13}$ D) $-\frac{3.002399752e+14}{6.567749457e+15}$

Answer: B

Solve the problem.

80) At many colleges, the number of "full–time–equivalent" students f is given by $f = \frac{n}{15}$, where n is the total number of credits for which students enroll in a given semester. Determine the number of full–time–equivalent students on a campus in which students registered for a total of 23,430 credits.

A) 23,445 full–time equivalent students B) 351,450 full–time equivalent students
C) 1562 full–time equivalent students D) 23,415 full–time equivalent students

Answer: C

81) The wavelength w, in meters per cycle, of a musical note is given by $w = \frac{r}{f}$, where r is the speed of the sound in meters per second and f is the frequency in cycles per second. The speed of sound in air is 344 m/sec. What is the wavelength of a note whose frequency in air is 25 cycles per second? Round to the nearest tenth of a meter per cycle.

A) 319.0 meters per cycle B) 0.1 meters per cycle
C) 13.8 meters per cycle D) 8600.0 meters per cycle

Answer: C

82) The perimeter of a rectangle with length L and width W is given by the formula P = 2L + 2W. Find the perimeter of a rectangle with length 8 meters and width 2 meters.

A) 20 meters B) 18 meters C) 32 meters D) 10 meters

Answer: A

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

A) 803.85 m^3 B) 85.33 m^3 C) 267.95 m^3 D) 66.99 m^3

Answer: C

84) The area of a triangle with base b and height h is given by the formula $A = \frac{1}{2}bh$. Find the area of a triangle with base 11 meters and height 7 meters.

A) 77 m^2 B) 38.5 m^2 C) 18.5 m^2 D) 18 m^2

Answer: B

85) The area of a circle with radius r is given by the formula $A = \pi r^2$. Find the area of a circle with radius 3 centimeters. Use 3.14 for π.

A) 9.42 cm^2 B) 29.58 cm^2 C) 6.14 cm^2 D) 28.26 cm^2

Answer: D

86) When a ball is thrown upward at a speed of 21 m/s, its height s above the ground (in meters) after t seconds is given by the formula $s = 21t - 4.9t^2$. Find the height of the ball after 3 seconds.

A) 33.6 meters B) 58.1 meters C) 18.9 meters D) 48.3 meters

Answer: C

Solve the formula for the indicated letter.

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

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

Answer: D

88) $V = \frac{1}{3}Bh$ for h

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

Answer: D

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

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

Answer: B

90) $a + b = s + r$ for s

A) $s = \frac{a}{r} + b$ B) $s = a + b - r$ C) $s = \frac{a + b}{r}$ D) $s = r(a + b)$

Answer: B

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91) $x = \frac{w + y + z}{4}$ for y

A) $y = x - w - z - 4$ B) $y = 4x - w - z$ C) $y = 4x - 4w - 4z$ D) $y = 4x + w + z$

Answer: B

92) $P = s_1 + s_2 + s_3$ for s_3

A) $s_3 = P + s_1 + s_2$ B) $s_3 = P - s_1 - s_2$ C) $s_3 = s_1 + P - s_2$ D) $s_3 = s_1 + s_2 - P$

Answer: B

93) $A = \frac{1}{2}h(b_1 + b_2)$ for b_1

A) $b_1 = \frac{2Ab_2 - h}{h}$ B) $b_1 = \frac{hb_2 - 2A}{h}$ C) $b_1 = \frac{2A - hb_2}{h}$ D) $b_1 = \frac{A - hb_2}{2h}$

Answer: C

94) $d = rt$ for r

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

Answer: D

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

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

Answer: A

96) $A = P(1 + nr)$ for r

A) $r = \frac{P - A}{Pn}$ B) $r = \frac{A - P}{Pn}$ C) $r = \frac{Pn}{A - P}$ D) $r = \frac{A}{n}$

Answer: B

97) $\frac{1}{a} + \frac{1}{b} = c$ for b

A) $b = \frac{1}{ac}$ B) $b = \frac{a}{ac - 1}$ C) $b = ac - \frac{1}{a}$ D) $b = \frac{1}{c} - a$

Answer: B

98) $\frac{1}{a} + \frac{1}{b} = \frac{1}{c}$ for c

A) $c = \frac{a + b}{ab}$ B) $c = \frac{ab}{a + b}$ C) $c = a + b$ D) $c = ab(a + b)$

Answer: B

99) $I = Prt$ for r (simple interest)

A) $r = \frac{P - I}{1 + t}$ B) $r = \frac{P - 1}{It}$ C) $r = P - tI$ D) $r = \frac{I}{Pt}$

Answer: D

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100) $S = 4\pi r^2$, for r^2
(surface area of a sphere with radius r)

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

Answer: D

Choose the most appropriate translation of the question.

101) What percent of 42 is 73?

A) $n = (0.73)42$ B) $n \cdot 73 = 42$ C) $n = (0.42)73$ D) $n \cdot 42 = 73$

Answer: D

102) 57 is 94% of what number?

A) $p \cdot 57 = 94$ B) $p = 0.94 \cdot 57$ C) $p = 0.57p$ D) $57 = 0.94p$

Answer: D

103) 56 is what percent of 32?

A) $q = 32 \cdot 0.56$ B) $q \cdot 32 = 56$ C) $q = 56 \cdot 0.32$ D) $q \cdot 56 = 32$

Answer: B

104) What is 88% of 44?

A) $t = 88 \cdot 44$ B) $t = 0.44 \cdot 88$ C) $0.88t = 44$ D) $t = 0.88 \cdot 44$

Answer: D

105) 80% of what number is 90?

A) $0.9 = 80y$ B) $80 = 0.9y$ C) $90 = 0.8y$ D) $0.8 = 90y$

Answer: C

Convert the percent notation in the sentence to decimal notation.

106) The amount of argon in the atmosphere of Mars is 1.6%.
Source: http://www.nineplanets.org/mars.html

A) 0.16 B) 0.016 C) 1.6 D) 0.0016

Answer: B

107) Saturn's gravity is 92% of Earth's.
Source: http://www.tqnyc.org/NYC040622/planets.html#Jupiter_

A) 0.092 B) 0.92 C) 9.2 D) 92

Answer: B

108) The unemployment rate was 5.7% for the month.

A) 0.057 B) 0.0057 C) 0.57 D) 5.7

Answer: A

109) People who work at home at least once per week, accounted for 15 percent of total employment.
Source: Bureau of Labor Statistics http://www.bls.gov/news.release/homey.nr0.htm

A) 0.015 B) 1.5 C) 0.15 D) 15

Answer: C

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110) Dietary Guidelines of the Food and Drug Administration recommend that Americans limit fat in their diets to 30 percent of calories.
Source: http://www.pueblo.gsa.gov/cic_text/food/food–pyramid/main.htm

A) 0.03 B) 0.30 C) 30.0 D) 3.0

Answer: B

Convert to decimal notation.

111) 89%

A) 0.089 B) 0.78 C) 8.9 D) 0.89

Answer: D

112) 20%

A) 0.02 B) 0.09 C) 2 D) 0.2

Answer: D

113) 71.2%

A) 7.12 B) 0.0712 C) 0.712 D) 0.602

Answer: C

114) 400%

A) 4.01 B) 4 C) 40 D) 0.4

Answer: B

115) 140%

A) 0.14 B) 1.4 C) 14 D) 1.41

Answer: B

116) 579%

A) 57.9 B) 5.8 C) 5.79 D) 0.579

Answer: C

117) 0.6%

A) 0.6 B) 0.007 C) 0.06 D) 0.006

Answer: D

118) 78.37%

A) 7.837 B) 0.07837 C) 0.7837 D) 0.7737

Answer: C

119) 0.69%

A) 0.069 B) 0.69 C) 0.0069 D) 0.0079

Answer: C

Convert the decimal notation in the sentence to percent notation.

120) The amount of selenium in an egg is 0.20 of the Daily Value.
Source: http://ods.od.nih.gov/factsheets/selenium.asp

A) 2.0% B) 0.20% C) 200% D) 20%

Answer: D

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121) The average amount of water in wheat flour is 0.119 of the weight.
Source: http://www.usaid.gov/hum_response/crg/fswheatflour.htm
A) 1.19% B) 0.119% C) 11.9% D) 119%
Answer: C

122) In 2005, women are 0.46 of all cases of lung cancer.

Source:
http://www.cancer.org/docroot/CRI/content/CRI_2_2_1X_How_many_people_get_lung_cancer_26.asp?sitearea=
A) 460% B) 46% C) 4.6% D) 0.46%
Answer: B

123) At least one episode of otitis media by the third birthday is experienced by 0.75 of all children.
Source: http://www.nidcd.nih.gov/health/hearing/otitism.asp
A) 75% B) 0.075% C) 0.75% D) 7.5%
Answer: A

124) Property is assessed at 0.11 of market value.
A) 1.1% B) 11% C) 0.11% D) 110%
Answer: B

Convert to percent notation.

125) 0.19
A) 1.9% B) 190% C) 19% D) 0.019%
Answer: C

126) 0.8
A) 0.08% B) 0.8% C) 800% D) 80%
Answer: D

127) 0.995
A) 0.0995% B) 0.995% C) 995% D) 99.5%
Answer: D

128) 0.446
A) 446% B) 0.0446% C) 44.6% D) 0.446%
Answer: C

129) 7.7
A) 770% B) 77% C) 0.0077% D) 0.77%
Answer: A

130) 0.00631
A) 0.0631% B) 0.000631% C) 0.3155% D) 0.631%
Answer: D

131) 8
A) 400% B) 0.08% C) 0.8% D) 800%
Answer: D

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132) 14.946

A) 1494.6% B) 1.4946% C) 14.946% D) 0.14946%

Answer: A

133) 8.824

A) 0.8824% B) 8.824% C) 0.08824% D) 882.4%

Answer: D

134) $\frac{69}{100}$

A) 690% B) 6.9% C) 0.69% D) 69%

Answer: D

135) $\frac{5}{10}$

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

Answer: B

136) $\frac{2}{4}$

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

Answer: C

137) $\frac{1}{20}$

A) 0.5% B) 0.05% C) 50% D) 5%

Answer: D

138) $\frac{3}{50}$

A) 6% B) 0.06% C) 60% D) 0.6%

Answer: A

Solve.

139) What is 10% of 700?

A) 70 B) 700 C) 7 D) 0.7

Answer: A

140) What is 5% of 600?

A) 3 B) 300 C) 0.3 D) 30

Answer: D

141) What is 34% of 1892?

A) 64.33 B) 643.28 C) 6432.8 D) 64,328

Answer: B

142) What is 84% of 460?

A) 386.4 B) 38,640 C) 3864 D) 38.64

Answer: A

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143) What number is 8.7% of 19?
A) 16.5 B) 165 C) 1.65 D) 0.17
Answer: C

144) What number is 7000% of 267?
A) 1869 B) 18,690 C) 1,869,000 D) 186,900
Answer: B

145) What number is 120% of 397?
A) 4764 B) 47,640 C) 47.64 D) 476.4
Answer: D

146) 85 is 90% of what number?
A) 94.44 B) 944.4 C) 76.5 D) 9.44
Answer: A

147) 16 is 9% of what number?
A) 17.78 B) 177.78 C) 144 D) 1777.8
Answer: B

148) 47% of what number is 76?
A) 161.7 B) 1617 C) 62 D) 0.62
Answer: A

149) 30% of what number is 91?
A) 303.33 B) 27.3 C) 3033.3 D) 30.33
Answer: A

150) 127 is 47% of what number?
A) 37 B) 270.21 C) 0.37 D) 2702.1
Answer: B

151) 17 is .84% of what number?
A) 494 B) 2023.81 C) 4.94 D) 20,238.1
Answer: B

152) 567 is 12.4% of what number?
A) 15 B) 4572.58 C) 45,725.8 D) 0.15
Answer: B

153) 52 is 133% of what number?
A) 176.89 B) 391 C) 17,689 D) 39.1
Answer: D

154) 916 is what percent of 1869?
A) 0.1% B) 49.0% C) 0.5% D) 204.0%
Answer: B

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155) 960 is what percent of 710?
A) 0.1% B) 135.2% C) 1.4% D) 74.0%
Answer: B

156) 4.0 is what percent of 23.3?
A) 0.2% B) 17.2% C) 582.5% D) 5.8%
Answer: B

157) What percent of 2559 is 16?
A) 16.3% B) 6.3% C) 0.6% D) 15,993.8%
Answer: C

158) What percent of 7 is 0.02?
A) 2.9% B) 0.3% C) 350.0% D) 28.6%
Answer: B

159) What percent of 187 is 11.2?
A) 0.2% B) 0.1% C) 6.0% D) 1669.6%
Answer: C

160) What percent of 62 is 405?
A) 0.2% B) 1.5% C) 65.3% D) 653.2%
Answer: D

161) 85.9 is what percent of 8?
A) 0.9% B) 9.3% C) 1073.8% D) 10,738.0%
Answer: C

162) What percent of 38 is 38?
A) 1% B) 0% C) 100% D) 200%
Answer: C

163) What percent of 120 is 60?
A) 200% B) 0% C) 50% D) 2%
Answer: C

164) The parking lot at a grocery store has 50 cars in it. 30% of the cars are blue. How many cars are blue?
A) 17 cars B) 167 cars C) 15 cars D) 150 cars
Answer: C

165) During one year, the Larson's real estate bill included $556 for local schools. Of this amount, $155 went to the high school district. What percent did the Larsons pay to the high school district? (Round answer to two decimal places.)
A) 27.88% B) 27.70% C) 72.12% D) 15.50%
Answer: A

166) During one year, the Green's real estate bill included $364 for city services. The fire department received 56% of that amount. How much money went to the fire department?
A) $44.00 B) $183.84 C) $20.38 D) $203.84
Answer: D

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167) During one year, the Cheung's real estate bill included $330 for county services. Of this amount, $86 went to the highway department. What percent did the county highway department receive? (Round answer to two decimal places.)

A) 73.94% B) 8.60% C) 25.76% D) 26.06%

Answer: D

168) During one year, the Schmidt's real estate bill included $284 for miscellaneous services. Of this amount, 52% went to the library fund. How much money did the library receive?

A) $119.28 B) $81.69 C) $127.68 D) $147.68

Answer: D

169) To finance her community college education, Marguerite takes out a Stafford loan for $2700. After a year, Marguerite decides to pay off the interest, which is 9% of $2700. How much will she pay?

A) $269 B) $24.30 C) $2430 D) $243

Answer: D

170) A tax–exempt school group received a bill of $176.55 for educational software. The bill incorrectly included sales tax of 7%. How much should the school group pay?

A) $23.57 B) $165.00 C) $115.50 D) $11.55

Answer: B

Solve the problem.

171) If Gloria received a 12 percent raise and is now making $25,760 a year, what was her salary before the raise? Round to the nearest dollar if necessary.

A) $23,000 B) $22,669 C) $24,000 D) $23,760

Answer: A

172) Stevie bought a stereo for $220 and put it on sale at his store at a 50% markup rate. What was the retail price of the stereo? Round to the nearest cent if necessary.

A) $320.00 B) $330.00 C) $230.00 D) $440.00

Answer: B

173) On Monday, an investor bought 100 shares of stock. On Tuesday, the value of the shares went up 3%. How much did the investor pay for the 100 shares if he sold them Wednesday morning for $1442? Round to the nearest dollar if necessary.

A) $1400 B) $1392 C) $1450 D) $1399

Answer: A

174) At the end of the day, a storekeeper had $1470 in the cash register, counting both the sale of goods and the sales tax of 5%. Find the amount that is the tax. Round to the nearest dollar if necessary.

A) $70 B) $74 C) $61 D) $75

Answer: A

175) Brand X copier advertises that its copiers run 13% longer between service calls than its competitor. If Brand X copiers run 52,700 copies between service calls, how many copies would the competitor run (to the nearest copy)?

A) 59,551 copies B) 28,182 copies C) 45,849 copies D) 46,637 copies

Answer: D

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176) After receiving a discount of 15.5% on its bulk order of typewriter ribbons, John's Office Supply pays $5070. What was the price of the order before the discount? Round to the nearest dollar if necessary."

A) $6000 B) $4284 C) $5856 D) $4538

Answer: A

177) After spending $3750 for tables and $1550 for chairs, a convention center manager finds that 25% of his original budget remains. Find the amount that remains. Round to the nearest dollar if necessary.

A) $7067 B) $1767 C) $2067 D) $1325

Answer: B

178) Midtown Antiques collects 3% sales tax on all sales. If total sales including tax are $1251.09, find the portion that is the tax. Round to the nearest cent if necessary.

A) $36.44 B) $26.44 C) $37.53 D) $1214.65

Answer: A

179) In a local election, 28,500 people voted. This was an increase of 9% over the last election. How many people voted in the last election? Round to the nearest whole person if necessary.

A) 25,935 people B) 31,319 people C) 31,065 people D) 26,147 people

Answer: D

180) In a local election, 34,200 people voted. This was a decrease of 9% over the last election. How many people voted in the last election? Round to the nearest whole person if necessary.

A) 37,278 people B) 31,122 people C) 37,582 people D) 31,376 people

Answer: C

Solve using the five–step problem–solving process.

181) The sum of two consecutive even integers is 98. Find the larger number.

A) 58 B) 44 C) 46 D) 50

Answer: D

182) The sum of the page numbers on the facing pages of a book is 325. Find the larger page number.

A) 158 B) 161 C) 163 D) 173

Answer: C

183) The difference between two positive integers is 36. One integer is three times as great as the other. Find the integers.

A) 36 and 54 B) 18 and 36 C) 54 and 90 D) 18 and 54

Answer: D

184) If –4 is added to a number and the sum is doubled, the result is 14 less than the number. Find the number.

A) 18 B) 22 C) –6 D) –22

Answer: C

185) The sum of twice a number and 16 less than the number is the same as the difference between –36 and the number. What is the number?

A) –5 B) –4 C) –6 D) –10

Answer: A

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186) The sum of two consecutive integers is –327. Find the larger integer.
A) –165 B) –164 C) –162 D) –163

Answer: D

187) The sum of three consecutive integers is 519. Find the integers.
A) 171, 173, 175 B) 172, 173, 174 C) 173, 174, 175 D) 171, 172, 173

Answer: B

188) The sum of three consecutive odd integers is 201. Find the integers.
A) 67, 69, 71 B) 65, 67, 69 C) 69, 71, 73 D) 60, 61, 62

Answer: B

189) If three times the smaller of two consecutive integers is added to four times the larger, the result is 60. Find the smaller integer.
A) 7 B) 8 C) 24 D) 9

Answer: B

190) If the first and third of three consecutive odd integers are added, the result is 87 less than five times the second integer. Find the third integer.
A) 58 B) 29 C) 27 D) 31

Answer: D

191) The second angle of a triangle is 3 times as large as the first. The third angle is 25° more than the first. Find the measure of the smallest angle.
A) 31° B) 25° C) 155° D) 65°

Answer: A

192) The second angle of a triangle is 4 times as large as the first. The third angle is 160° more than the sum of the other two angles. Find the measure of the second angle.
A) $\frac{1}{2}°$ B) 2° C) 10° D) 8°

Answer: D

193) Two angles of a triangle are 50° and 50°. What is the measure of the third angle?
A) –10° B) 260° C) 100° D) 80°

Answer: D

194) The complement of an angle measures 22° less than the angle. Find the measure of the angle.
A) 44° B) 146° C) 56° D) 158°

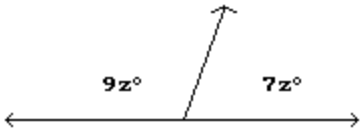
Answer: C

195) The supplement of an angle measures 27° more than twice its complement. Find the measure of the angle.
A) 126° B) 54° C) 36° D) 27°

Answer: D

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196) Find the measures of the supplementary angles.



A) 202.5° and 157.5° B) 101.25° and 78.75° C) 50.63° and 39.38° D) 96.25° and 83.75°

Answer: B

197) Find the length of a rectangular lot with a perimeter of 82 meters if the length is 7 meters more than the width. (P = 2L + 2W)

A) 48 m B) 17 m C) 41 m D) 24 m

Answer: D

198) A square plywood platform has a perimeter which is 6 times the length of a side, decreased by 6. Find the length of a side.

A) 3 B) 1 C) 2 D) 5

Answer: A

199) A rectangular Persian carpet has a perimeter of 236 inches. The length of the carpet is 22 inches more than the width. What are the dimensions of the carpet?

A) 107 in., 129 in. B) 70 in., 92 in. C) 48 in., 70 in. D) 96 in., 118 in.

Answer: C

200) A triangular lake–front lot has a perimeter of 1200 feet. One side is 100 feet longer than the shortest side, while the third side is 200 feet longer than the shortest side. Find the lengths of all three sides.

A) 300 ft, 400 ft, 500 ft B) 100 ft, 200 ft, 300 ft C) 400 ft, 500 ft, 600 ft D) 400 ft, 400 ft, 400 ft

Answer: A

201) You are traveling to your aunt's house that is 243 miles away. If you are currently twice as far from home as you are from your aunt's, how far have you traveled? Round to the nearest tenth mile, if necessary.

A) 81 miles B) 162 miles C) 121.5 miles D) 40.5 miles

Answer: B

202) Kevin invested money in a savings account at a rate of 5% simple interest. After one year, he has $3801.00 in the account. How much did Kevin originally invest? Round to the nearest penny, if necessary.

A) $40.01 B) $3620.00 C) $4001.05 D) $3796.00

Answer: B

203) Eric paid $501.27, including 6% tax, for an LCD computer monitor. How much did the computer monitor itself cost? Round to the nearest penny, if necessary.

A) $472.90 B) $30.08 C) $471.90 D) $533.27

Answer: A

204) The houses on the north side of Perry Street are consecutive odd numbers. Tom and Voula are next–door neighbors and the sum of their house numbers is 564. Find their house numbers.

A) 283, 287 B) 281, 285 C) 281, 283 D) 285, 287

Answer: C

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Use the following table, which shows how much Bruce and Marty charge for cleaning various sizes of houses, to answer the question.

House cleaning in square feet	Cleaning rate
1000	**$45**
1100	**$50**
1200	**$55**
2000	**$95**
3000	**$145**

205) For what size house is the cleaning cost $105?
A) 2200 sq ft B) 3200 sq ft C) 2300 sq ft D) 3100 sq ft
Answer: A

Solve the problem.

206) Allen warmed up by walking his dog for 20 minutes, then he jogged for 40 minutes. His walking rate was 240 feet per minute slower than his jogging rate. If he walked and jogged a total of 33,000 feet, how fast did he walk?
A) 550 feet per minute B) 390 feet per minute
C) 630 feet per minute D) 80 feet per minute
Answer: B

207) Belinda drove for 2 hours in the fog then for 8 more hours in clear weather. She drove half as fast through the fog as she did in clear weather. If she drove 350 more miles in clear weather than she did in the fog, how fast did she drive in the fog?
A) 50 mph B) 58 mph C) 33 mph D) 25 mph
Answer: D

208) Oscar rode his bicycle at a rate of 9 mph and then speeded up to 16 mph. He rode 30 minutes longer at 9 mph than he did at 16 mph. If he traveled a total of 22 miles, how long did he ride at the slower rate?
A) 1.06 hr, or 64 min B) 1.56 hr, or 94 min C) 1.2 hr, or 72 min D) 0.7 hr, or 42 min
Answer: C

Insert the symbol <, >, ≥, or ≤ to make the pair of inequalities equivalent.

209) $-3y \geq 21$; y -7
A) > B) < C) ≤ D) ≥
Answer: C

210) $-7t \leq -42$; t 6
A) < B) ≥ C) > D) ≤
Answer: B

211) $-4p > -24$; p 6
A) ≤ B) > C) < D) ≥
Answer: C

212) $-5z < 15$; z -3
A) > B) ≤ C) < D) ≥
Answer: A

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Classify the pair of inequalities as "equivalent" or "not equivalent."

213) $v \geq -4;\ -4 \leq v$

A) Equivalent B) Not equivalent

Answer: A

214) $w \leq -2;\ -2 \leq w$

A) Equivalent B) Not equivalent

Answer: B

215) $-5s - 2 < 1;\ -5s < 3$

A) Equivalent B) Not equivalent

Answer: A

216) $-2f + 4 > 4;\ -2f > 8$

A) Equivalent B) Not equivalent

Answer: B

Determine whether the given number is a solution of the inequality.

217) $x > -3, 6.8$

A) Yes B) No

Answer: A

218) $x > 8,\ -14.2$

A) Yes B) No

Answer: B

219) $x < -4, -8.1$

A) Yes B) No

Answer: A

220) $x > 1, -3.9$

A) Yes B) No

Answer: B

221) $x \geq 10, 12.7$

A) Yes B) No

Answer: A

222) $x \geq 14, -8.6$

A) Yes B) No

Answer: B

223) $x \leq 1, -4.1$

A) Yes B) No

Answer: A

224) $x \leq -8, -4$

A) Yes B) No

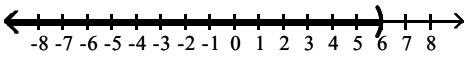
Answer: B

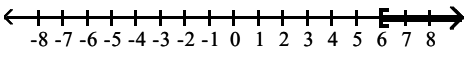
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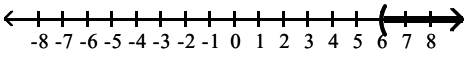
Graph on a number line.

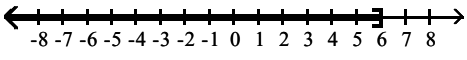
225) $x > 6$



A) 

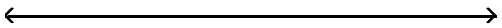
B) 

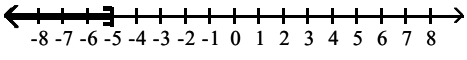
C) 

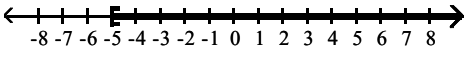
D) 

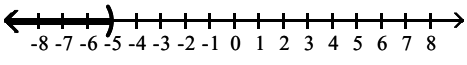
Answer: C

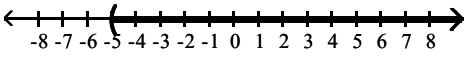
226) $x < -5$



A) 

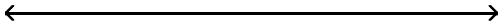
B) 

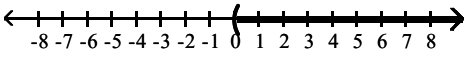
C) 

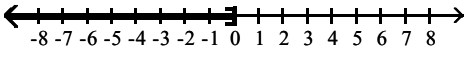
D) 

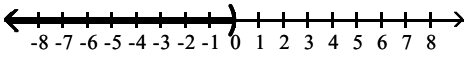
Answer: C

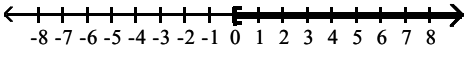
227) $x \geq 0$



A) 

B) 

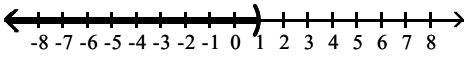
C) 

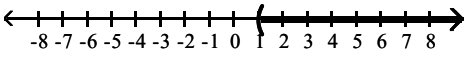
D) 

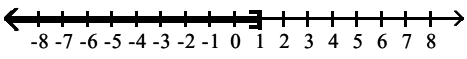
Answer: D

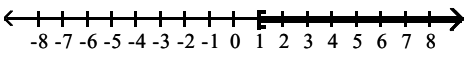
228) $x \leq 1$



A) 

B) 

C) 

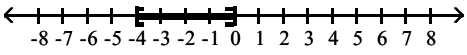
D) 

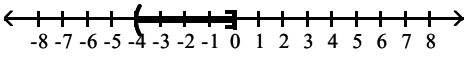
Answer: C

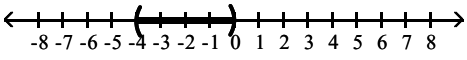
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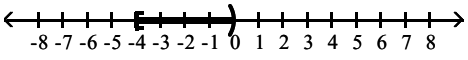
229) $-4 \le x \le 0$



A) 

B) 

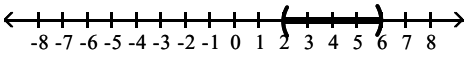
C) 

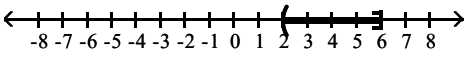
D) 

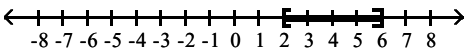
Answer: A

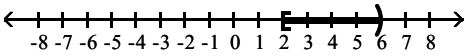
230) $2 < x < 6$



A) 

B) 

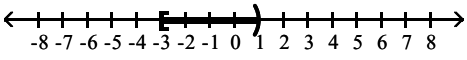
C) 

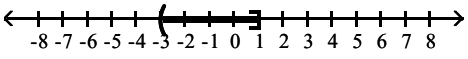
D) 

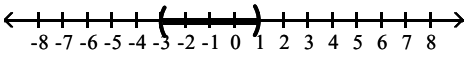
Answer: A

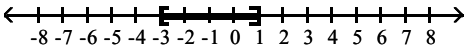
231) $-3 \le x < 1$



A) 

B) 

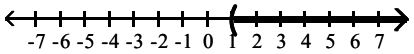
C) 

D) 

Answer: A

Describe the graph using both set–builder notation and interval notation.

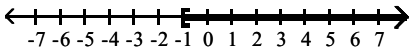
232)



A) $\{x|x < 1\}$ or $(-\infty, 1)$ B) $\{x|x \le 1\}$ or $(-\infty, 1]$ C) $\{x|x \ge 1\}$ or $[1, \infty)$ D) $\{x|x > 1\}$ or $(1, \infty)$

Answer: D

233)

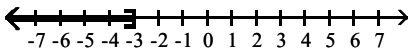


A) $\{x|x \ge -1\}$ or $[-1, \infty)$ B) $\{x|x < -1\}$ or $(-\infty, -1)$
C) $\{x|x > -1\}$ or $(-1, \infty)$ D) $\{x|x \le -1\}$ or $(-\infty, -1]$

Answer: A

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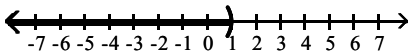
234)



A) {x|x < –3} or (-∞, –3)
B) {x|x > –3} or (–3, ∞)
C) {x|x ≥ –3} or [–3, ∞)
D) {x|x ≤ –3} or (-∞, –3]

Answer: D

235)

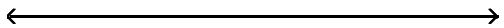


A) {x|x ≤ 1} or (-∞, 1]
B) {x|x < 1} or (-∞, 1)
C) {x|x ≥ 1} or [1, ∞)
D) {x|x > 1} or (1, ∞)

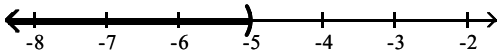
Answer: B

Solve using the addition principle. Graph and write set–builder notation and interval notation for the answer.

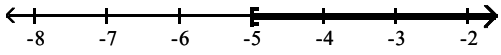
236) a – 10 < –15



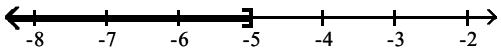
A) {a| a < –5} or (-∞, –5)



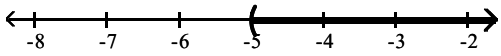
B) {a| a ≥ –5} or [–5, ∞)



C) {a| a ≤ –5} or (-∞, –5]



D) {a| a > –5} or (–5, ∞)

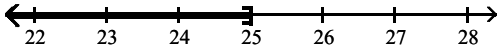


Answer: A

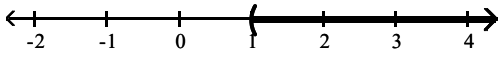
237) –5n + 12 > –6n + 13



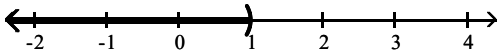
A) {n| n ≤ 25} or (-∞, 25]



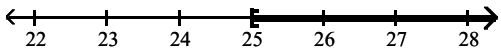
B) {n| n > 1} or (1, ∞)



C) {n| n < 1} or (-∞, 1)



D) {n| n ≥ 25} or [25, ∞)



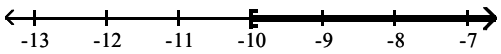
Answer: B

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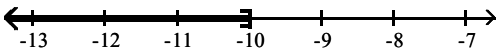
238) $-6t - 2 \geq -7t - 12$



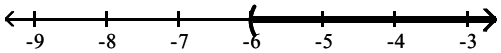
A) $\{t \mid t \geq -10\}$ or $[-10, \infty)$



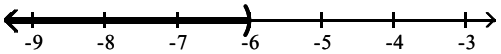
B) $\{t \mid t \leq -10\}$ or $(-\infty, -10]$



C) $\{t \mid t > -6\}$ or $(-6, \infty)$



D) $\{t \mid t < -6\}$ or $(-\infty, -6)$

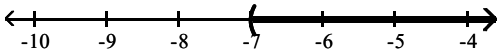


Answer: A

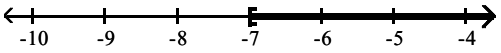
239) $f + 8 < 1$



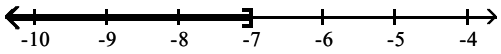
A) $\{f \mid f > -7\}$ or $(-7, \infty)$



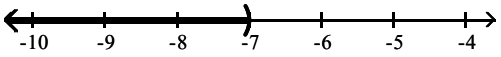
B) $\{f \mid f \geq -7\}$ or $[-7, \infty)$



C) $\{f \mid f \leq -7\}$ or $(-\infty, -7]$

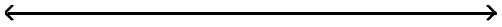


D) $\{f \mid f < -7\}$ or $(-\infty, -7)$

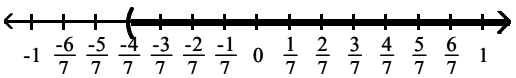


Answer: D

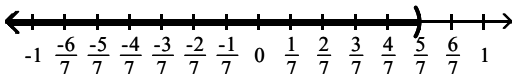
240) $x + \frac{4}{21} > \frac{16}{21}$



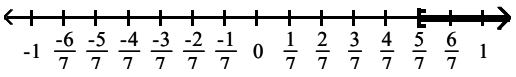
A) $\left\{x \mid x > -\frac{4}{7}\right\}$ or $\left(-\frac{4}{7}, \infty\right)$



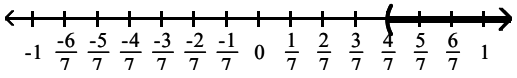
B) $\left\{x \mid x < \frac{5}{7}\right\}$ or $\left(-\infty, \frac{5}{7}\right)$



C) $\left\{x \mid x \geq \frac{4}{7}\right\}$ or $\left[\frac{4}{7}, \infty\right)$



D) $\left\{x \mid x > \frac{4}{7}\right\}$ or $\left(\frac{4}{7}, \infty\right)$



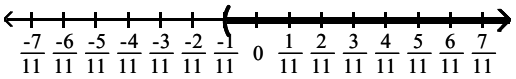
Answer: D

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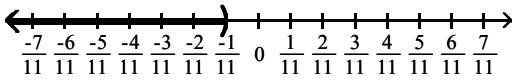
241) $x - \frac{2}{11} \geq -\frac{8}{11}$



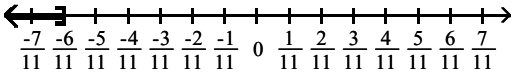
A) $\left\{x \mid x > -\frac{1}{11}\right\}$ or $\left(-\frac{1}{11}, \infty\right)$



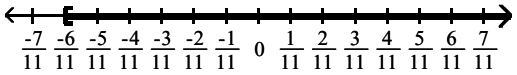
B) $\left\{x \mid x < -\frac{1}{11}\right\}$ or $\left(\infty, -\frac{1}{11}\right)$



C) $\left\{x \mid x \leq -\frac{6}{11}\right\}$ or $\left(-\infty, -\frac{6}{11}\right]$



D) $\left\{x \mid x \geq -\frac{6}{11}\right\}$ or $\left[-\frac{6}{11}, \infty\right)$



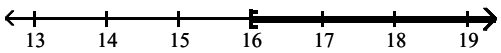
Answer: D

Solve using the multiplication principle. Graph and write set–builder notation for the answer.

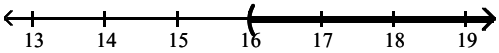
242) $\frac{x}{4} \geq 4$



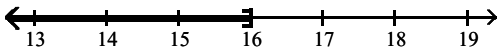
A) $\{x \mid x \geq 16\}$ or $[16, \infty)$



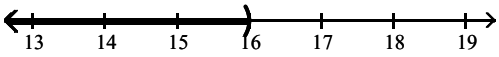
B) $\{x \mid x > 16\}$ or $(16, \infty)$



C) $\{x \mid x \leq 16\}$ or $(-\infty, 16]$



D) $\{x \mid x < 16\}$ or $(-\infty, 16)$

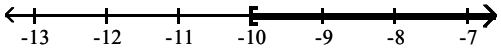


Answer: A

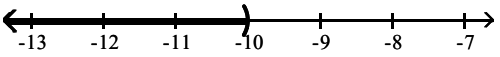
243) $-5 < \frac{k}{2}$



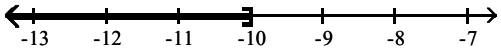
A) $\{k \mid k \geq -10\}$ or $[-10, \infty)$



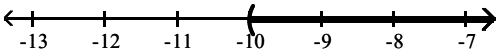
B) $\{k \mid k < -10\}$ or $(-\infty, -10)$



C) $\{k \mid k \leq -10\}$ or $(-\infty, -10]$



D) $\{k \mid k > -10\}$ or $(-10, \infty)$



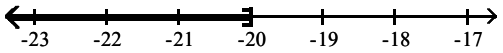
Answer: D

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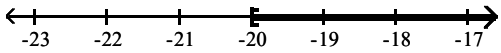
244) $-5 \geq \frac{x}{4}$



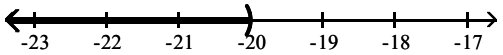
A) {x| x ≤ −20} or (-∞, −20]



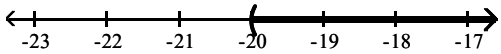
B) {x| x ≥ −20} or [−20, ∞)



C) {x| x < −20} or (-∞, −20)



D) {x| x > −20} or (−20, ∞)

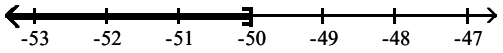


Answer: A

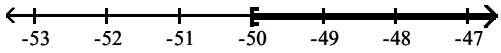
245) $10 > \frac{k}{-5}$



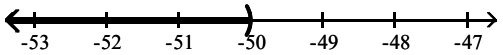
A) {k| k ≤ −50} or (-∞, −50]



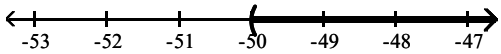
B) {k| k ≥ −50} or [−50, ∞)



C) {k| k < −50} or (-∞, −50)



D) {k| k > −50} or (−50, ∞)

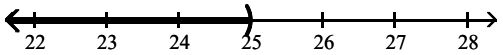


Answer: D

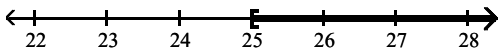
246) $\frac{x}{5} > 5$



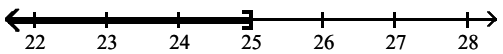
A) {x| x < 25} or (-∞, 25)



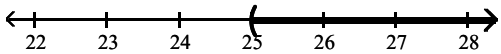
B) {x| x ≥ 25} or [25, ∞)



C) {x| x ≤ 25} or (-∞, 25]



D) {x| x > 25} or (25, ∞)



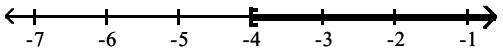
Answer: D

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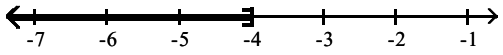
247) $\frac{b}{-2} < 2$



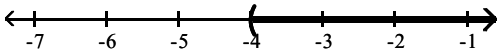
A) {b| b ≥ −4} or [−4, ∞)



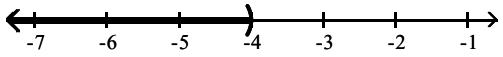
B) {b| b ≤ −4} or (-∞, −4]



C) {b| b > −4} or (−4, ∞)



D) {b| b < −4} or (-∞, −4)

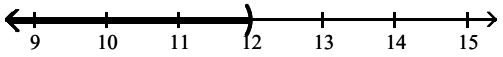


Answer: C

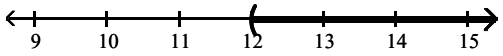
248) $-2 > \frac{a}{-6}$



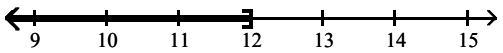
A) {a| a < 12} or (-∞, 12)



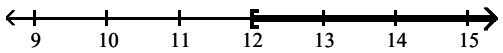
B) {a| a > 12} or (12, ∞)



C) {a| a ≤ 12} or (-∞, 12]



D) {a| a ≥ 12} or [12, ∞)

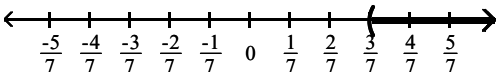


Answer: B

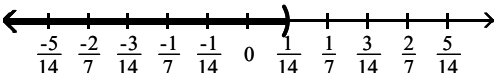
249) $-2x < \frac{1}{7}$



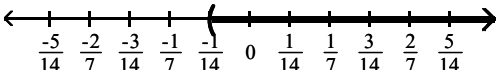
A) $\left\{x \mid x > \frac{3}{7}\right\}$ or $\left(\frac{3}{7}, \infty\right)$



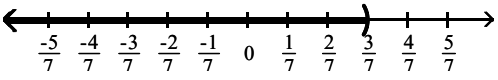
B) $\left\{x \mid x < \frac{1}{14}\right\}$ or $\left(-\infty, \frac{1}{14}\right)$



C) $\left\{x \mid x > -\frac{1}{14}\right\}$ or $\left(-\frac{1}{14}, \infty\right)$



D) $\left\{x \mid x < \frac{3}{7}\right\}$ or $\left(-\infty, \frac{3}{7}\right)$



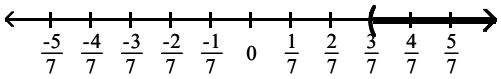
Answer: C

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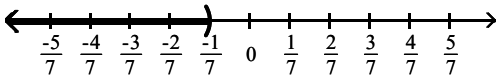
250) $-\frac{6}{7} > -2x$



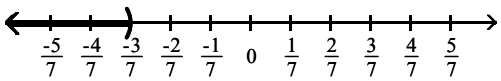
A) $\left\{x \mid x > \frac{3}{7}\right\}$ or $\left(\frac{3}{7}, \infty\right)$



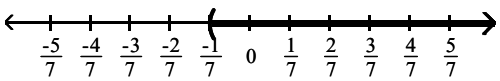
B) $\left\{x \mid x < -\frac{1}{7}\right\}$ or $\left(-\infty, -\frac{1}{7}\right)$



C) $\left\{x \mid x < -\frac{3}{7}\right\}$ or $\left(-\infty, -\frac{3}{7}\right)$



D) $\left\{x \mid x > -\frac{1}{7}\right\}$ or $\left(-\frac{1}{7}, \infty\right)$



Answer: A

Solve using the addition and multiplication principles.

251) $-4z + 9 > -5z + 20$

A) $\{z \mid z > 11\}$ or $(11, \infty)$
B) $\{z \mid z < 11\}$ or $(-\infty, 11)$
C) $\{z \mid z < 29\}$ or $(-\infty, 29)$
D) $\{z \mid z > 29\}$ or $(29, \infty)$

Answer: A

252) $-10a - 4 \le -11a + 7$

A) $\{a \mid a > -10\}$ or $(-10, \infty)$
B) $\{a \mid a \le 11\}$ or $(-\infty, 11]$
C) $\{a \mid a < -10\}$ or $(-\infty, -10)$
D) $\{a \mid a \ge 11\}$ or $[11, \infty)$

Answer: B

253) $12z + 2 \ge 11z + 12$

A) $\{z \mid z \le 10\}$ or $(-\infty, 10]$
B) $\{z \mid z < 12\}$ or $(-\infty, 12)$
C) $\{z \mid z > 12\}$ or $(12, \infty)$
D) $\{z \mid z \ge 10\}$ or $[10, \infty)$

Answer: D

254) $-6y + 9 \ge -5y + 10$

A) $\{y \mid y > -6\}$ or $(-6, \infty)$
B) $\{y \mid y \le -6\}$ or $(-\infty, -6]$
C) $\{y \mid y \le -1\}$ or $(-\infty, -1]$
D) $\{y \mid y \ge 1\}$ or $[1, \infty)$

Answer: C

255) $-11 + 8z - 1 \ge 7z - 21$

A) $\{z \mid z \le -9\}$ or $(-\infty, -9]$
B) $\{z \mid z > 8\}$ or $(8, \infty)$
C) $\{z \mid z \ge -9\}$ or $[-9, \infty)$
D) $\{z \mid z < 8\}$ or $(-\infty, 8)$

Answer: C

256) $0.6x + 11 + x > 2x + 12 - 0.5x$

A) $\{x \mid x \ge -1\}$ or $[-1, \infty)$
B) $\{x \mid x < 10\}$ or $(-\infty, 10)$
C) $\{x \mid x < -1\}$ or $(-\infty, -1)$
D) $\{x \mid x > 10\}$ or $(10, \infty)$

Answer: D

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257) $\frac{x}{2} + 14 \le 10$

A) {x| x ≥ –8} or [–8, ∞)
B) {x| x ≤ –8} or (-∞, –8]
C) {x| x ≤ 6} or (-∞, 6]
D) {x| x < –6} or (-∞, –6)

Answer: B

258) 8 + 8x < 32

A) {x| x > 3} or (3, ∞)
B) {x| x > 5} or (5, ∞)
C) {x| x < 3} or (-∞, 3)
D) {x| x < 5} or (-∞, 5)

Answer: C

259) 8 + 8y ≥ 72

A) {y| y ≤ 10} or (-∞, 10]
B) {y| y ≥ 8} or [8, ∞)
C) {y| y ≥ 10} or [10, ∞)
D) {y| y ≤ 8} or (-∞, 8]

Answer: B

260) –9 < 7t + 3 – 6t

A) {t| t > –12} or (–12, ∞)
B) {t| t < 6} or (-∞, 6)
C) {t| t < –6} or (-∞, –6)
D) {t| t > 12} or (12, ∞)

Answer: A

261) 9x – 15 > 3(2x – 1)

A) {x| x ≥ 4} or [4, ∞)
B) {x| x ≤ 4} or (-∞, 4]
C) {x| x < 4} or (-∞, 4)
D) {x| x > 4} or (4, ∞)

Answer: D

262) –2(2y – 1) < –6y – 6

A) {y| y > –4} or (–4, ∞)
B) {y| y ≤ –4} or (-∞, –4]
C) {y| y < –4} or (-∞, –4)
D) {y| y ≥ –4} or [–4, ∞)

Answer: C

263) –12r – 8 ≤ –2(5r + 5)

A) {r| r ≥ 1} or [1, ∞)
B) {r| r ≤ 1} or (-∞, 1]
C) {r| r < 1} or (-∞, 1)
D) {r| r > 1} or (1, ∞)

Answer: A

264) 12n + 12 ≤ 3(3n – 2)

A) {n| n > –6} or (–6, ∞)
B) {n| n < –6} or (-∞, –6)
C) {n| n ≥ –6} or [–6, ∞)
D) {n| n ≤ –6} or (-∞, –6]

Answer: D

265) $\frac{2}{3}(2x - 1) < -6$

A) {x| x ≥ 4} or [4, ∞)
B) {x| x < 4} or (-∞, 4)
C) {x| x ≤ – 4} or (-∞, – 4]
D) {x| x < – 4} or (-∞, – 4)

Answer: D

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266) $\frac{5}{6}\left(5x - \frac{2}{15}\right) - \frac{2}{5} < \frac{3}{5}$

A) $\left\{x \mid x \geq -\frac{4}{15}\right\}$ or $\left[-\frac{4}{15}, \infty\right)$

B) $\left\{x \mid x < -\frac{4}{15}\right\}$ or $\left(-\infty, -\frac{4}{15}\right)$

C) $\left\{x \mid x \leq \frac{4}{15}\right\}$ or $\left(\infty, \frac{4}{15}\right]$

D) $\left\{x \mid x < \frac{4}{15}\right\}$ or $\left(-\infty, \frac{4}{15}\right)$

Answer: D

Choose the inequality which describes the sentence.

267) x is less than y

A) $x \geq y$ B) $x < y$ C) $x \leq y$ D) $y < x$

Answer: B

268) x is at least y

A) $x < y$ B) $x \geq y$ C) $x > y$ D) $y \geq x$

Answer: B

269) y is no less than x

A) $x < y$ B) $y < x$ C) $x \geq y$ D) $y \geq x$

Answer: D

270) y is exceeded by x

A) $y < x$ B) $x \leq y$ C) $y \leq x$ D) $x < y$

Answer: A

Translate the sentence to an algebraic inequality.

271) A number is greater than 7.

A) $x < 7$ B) $x > 7$ C) $x \geq 7$ D) $x \leq 7$

Answer: B

272) A number is less than or equal to –6.

A) $x > -6$ B) $x \geq -6$ C) $x < -6$ D) $x \leq -6$

Answer: D

273) John weighs at least 143 pounds.

A) $x < 143$ B) $x \leq 143$ C) $x > 143$ D) $x \geq 143$

Answer: D

274) The score on a test was between 82 and 68.

A) $68 < x < 82$ B) $82 < x < 68$ C) $x > 68$ D) $x < 82$

Answer: A

275) The cost is no more than $634.98.

A) $x > 634.98$ B) $x \geq 634.98$ C) $x \leq 634.98$ D) $x < 634.98$

Answer: C

276) The number of people at a concert is not to exceed 1234.

A) $x \leq 1234$ B) $x \geq 1234$ C) $x > 1234$ D) $x < 1234$

Answer: A

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277) The height of a member of the basketball team is at least 78 inches.
A) $x \geq 78$ B) $x > 78$ C) $x \leq 78$ D) $x < 78$
Answer: A

Use an inequality and the five–step process to solve the problem.

278) One side of a rectangle is 16 inches and the other side is x inches. What values of x will make the perimeter at least 42?
A) $0 < x \leq 5$ B) $x < 5$ C) $x \leq 5$ D) $x \geq 5$
Answer: D

279) One side of a rectangle is 11 inches and the other side is x inches. What values of x will make the perimeter at most 52?
A) $0 < x \leq 15$ B) $x \geq 15$ C) $x \leq 15$ D) $x < 15$
Answer: A

280) One side of a rectangle is 4 times the other, and the perimeter is not to exceed 90. Find the possible values for x, the length of the shorter side.
A) $0 < x \leq 36$ B) $0 < x \leq 9$ C) $x \geq 36$ D) $x \leq 9$
Answer: B

281) One side of a triangle is 4 cm shorter than the base, x. The other side is 2 cm longer than the base. What lengths of the base will allow the perimeter of the triangle to be at least 40 cm?
A) $x \leq 16$ B) $x \geq 14$ C) $x > 10$ D) $0 < x \leq 14$
Answer: B

282) One side of a rectangle is 6 inches and the other side is x inches. Find the value of x if the area must be at least 42 square inches.
A) $x = 7$ B) $x \geq 7$ C) $x \leq 7$ D) $0 < x \leq 7$
Answer: B

283) The area of a triangle must be at most 91 square inches, the base is 13 inches, and the height is x inches. Find the possible values for x.
A) $0 < x \leq 14$ B) $x < 14$ C) $0 < x \leq 28$ D) $0 < x \leq 7$
Answer: A

284) The color guard is making new triangular flags that must have a base of 18 inches to fit on their flagpoles. What is the maximum length of the triangular flags, if they want to use a maximum of 216 $in.^2$ of cloth?
A) 12 in. B) 48 in. C) 26 in. D) 24 in.
Answer: D

285) A shopkeeper is making a triangular sign for his store front, but he must keep the sign under 20 ft^2 to adhere to zoning laws. If the base of the sign is 8 ft, what is the maximum height of the triangular sign?
A) 1.250 ft B) 2.50 ft C) 32 ft D) 5.0 ft
Answer: D

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286) In order for a chemical reaction to take place, the Fahrenheit temperature of the reagents must be at least 124.24°F. Find the Celsius temperatures at which the reaction may occur. ($F = \frac{9}{5}C + 32$)

A) $C \leq 51.24°$ B) $C \geq 255.63°$ C) $C \geq 51.24°$ D) $C < 255.63°$

Answer: C

287) In order for a chemical reaction to remain stable, its Celsius temperature must be no more than 80.78°C. Find the Fahrenheit temperatures at which the reaction will remain stable. ($F = \frac{9}{5}C + 32$)

A) $F \geq 27.1°$ B) $F \leq 27.1°$ C) $F \geq 177.4°$ D) $F \leq 177.4°$

Answer: D

288) The equation $y = 0.003x + 0.20$ can be used to determine the approximate profit, y in dollars, of producing x items. How many items must be produced so the profit will be at least $3467?

A) $x \geq 1{,}155{,}734$ B) $x \leq 1{,}155{,}600$ C) $0 < x \leq 1{,}155{,}599$ D) $x \geq 1{,}155{,}600$

Answer: D

289) If the formula $R = -0.037t + 50.1$ can be used to predict the world record in the 400–meter dash t years after 1925, for what years will the world records be 47.2 seconds or less?

A) 1979 or after B) 2003 or after C) 2005 or after D) 2004 or after

Answer: D

290) If the formula $P = 0.5643Y - 1092.57$ can be used to predict the average price of a theater ticket after 1945, for what years will the average theater ticket price be at least 43 dollars? (Y is the actual year.)

A) 2015 or after B) 2011 or after C) 2023 or after D) 2013 or after

Answer: D

291) A salesperson has two job offers. Company A offers a weekly salary of $540 plus commission of 18% of sales. Company B offers a weekly salary of $1080 plus commission of 9% of sales. What is the amount of sales above which Company A's offer is the better of the two?

A) $12,000 B) $3000 C) $6100 D) $6000

Answer: D

292) Company A rents copiers for a monthly charge of $120 plus 8 cents per copy. Company B rents copiers for a monthly charge of $240 plus 4 cents per copy. What is the number of copies above which Company A's charges are the higher of the two?

A) 3000 copies B) 3100 copies C) 1500 copies D) 6000 copies

Answer: A

293) A car rental company has two rental rates. Rate 1 is $49 per day plus $.14 per mile. Rate 2 is $98 per day plus $.07 per mile. If you plan to rent for one week, how many miles would you need to drive to pay less by taking Rate 2?

A) more than 17,150 miles B) more than 68,600 miles
C) more than 4900 miles D) more than 35,000 miles

Answer: C

294) Jim has gotten scores of 66 and 90 on his first two tests. What score must he get on his third test to keep an average of 80 or greater?

A) At least 78 B) At least 84 C) At least 78.7 D) At least 83

Answer: B

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295) A bag of marbles has twice as many blue marbles as green marbles, and the bag has at least 15 marbles in it. At least how many green marbles does it have?

A) At least 10 green marbles
B) At least 8 green marbles
C) At least 6 green marbles
D) At least 5 green marbles

Answer: D

296) Jon has 1023 points in his math class. He must have 84% of the 1300 points possible by the end of the term to receive credit for the class. What is the minimum number of additional points he must earn by the end of the term to receive credit for the class?

A) 69 points
B) 859 points
C) 277 points
D) 1092 points

Answer: A

297) DG's Plumbing and Heating charges $50 plus $70 per hour for emergency service. Bill remembers being billed just over $500 for an emergency call. How long to the nearest hour was the plumber at Bill's house?

A) 16 hours
B) 12 hours
C) 8 hours
D) 6 hours

Answer: D

298) A 9–pound puppy is gaining weight at a rate of $\frac{2}{3}$ lb per week. How much more time will it take for the puppy's weight to exceed $20\frac{2}{3}$ lb?

A) more than $18\frac{1}{2}$ weeks
B) more than $8\frac{3}{4}$ week(s)
C) more than $44\frac{1}{2}$ weeks
D) more than $17\frac{1}{2}$ weeks

Answer: D

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