

TEST BANK

Third Edition



Elementary & Intermediate
Algebra

George Woodbury



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

Determine whether the given equation is linear.

1) $4x + 2 = 8$ 1) _____
A) Linear B) Nonlinear

2) $-10 = 8x + 4$ 2) _____
A) Linear B) Nonlinear

3) $4x + x^2 = 3$ 3) _____
A) Linear B) Nonlinear

4) $9x = 36$ 4) _____
A) Linear B) Nonlinear

5) $0 = -8x^3 - 6x + 13$ 5) _____
A) Linear B) Nonlinear

6) $4 - 5x^2 = 7$ 6) _____
A) Linear B) Nonlinear

7) $-2(x + 2) = 9$ 7) _____
A) Linear B) Nonlinear

8) $\frac{6}{x} - 7x = 0$ 8) _____
A) Linear B) Nonlinear

9) $\frac{2x}{3} - \frac{1}{2} = 6x$ 9) _____
A) Linear B) Nonlinear

Determine whether the given value is a solution of the equation.

10) $p = 15, p + 5 = 20$ 10) _____
A) Yes B) No

11) $p = 4, p - 1 = 3$ 11) _____
A) Yes B) No

12) $m = 3, 3m + 4 = 15$ 12) _____
A) Yes B) No

13) $y = 5, 8y + 3(y - 4) = 43$ 13) _____
A) Yes B) No

14) $p = 3, 9p + 6p - 2 = 43$ 14) _____
A) Yes B) No

15) $x = \frac{1}{18}, \frac{9}{5}x + \frac{9}{10} = 1$ 15) _____

A) Yes

B) No

Solve by using the multiplication property of equality.

16) $-3a = 9$

A) {1}

B) {-3}

C) {12}

D) {-12}

16) _____

17) $-4x = -20$

A) {5}

B) {2}

C) {16}

D) {-16}

17) _____

18) $6b = -102$

A) {1}

B) {108}

C) {-17}

D) {-108}

18) _____

19) $-x = 9$

A) {9}

B) {0}

C) {-9}

D) {1}

19) _____

20) $-20.0 = -5.0c$

A) {15.0}

B) {4.0}

C) {2.0}

D) {-15.0}

20) _____

21) $\frac{1}{8}x = 2$

A) {-6}

B) {-1}

C) {-16}

D) {-7}

21) _____

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

A) {1}

B) {-6}

C) {-5}

D) {6}

22) _____

23) $\frac{1}{15}a = 0$

A) {-15}

B) {1}

C) {0}

D) {15}

23) _____

24) $\frac{n}{5} = 6$

A) {11}

B) {1}

C) {10}

D) {30}

24) _____

25) $\frac{2}{7}y = \frac{1}{6}$

A) $\left\{-\frac{7}{12}\right\}$

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

C) $\left\{\frac{7}{12}\right\}$

D) $\left\{-\frac{12}{7}\right\}$

25) _____

Solve by using the addition property of equality.

26) $m - 4 = 12$

A) {-16}

B) {8}

C) {16}

D) {-8}

26) _____

27) $a - 8 = -4$

A) {-12}

B) {12}

C) {-4}

D) {4}

27) _____

28) $m + 7 = 8$

A) {-1}

B) {15}

C) {-15}

D) {1}

28) _____

29) $9 = s + 8$

A) {1}

B) {-17}

C) {17}

D) {-1}

29) _____

- 30) $27 = b - 29$ 30) _____
 A) {56} B) {-56} C) {2} D) {-2}
- 31) $b - 12.95 = 0$ 31) _____
 A) {- 11.95} B) {- 12.95} C) {11.95} D) {12.95}
- 32) $- 21.7 - a = 16.4$ 32) _____
 A) {5.3} B) {38.1} C) {- 38.1} D) {-5.3}
- 33) $\frac{3}{b - \frac{3}{44}} = 0$ 33) _____
 A) $\left\{-\frac{44}{3}\right\}$ B) $\left\{\frac{44}{3}\right\}$ C) $\left\{\frac{3}{44}\right\}$ D) $\left\{-\frac{3}{44}\right\}$
- 34) $x - \frac{8}{9} = \frac{4}{27}$ 34) _____
 A) $\left\{-\frac{20}{27}\right\}$ B) $\left\{\frac{28}{27}\right\}$ C) $\left\{\frac{7}{9}\right\}$ D) $\left\{\frac{4}{9}\right\}$
- 35) $a + 4 + 6 = 2$ 35) _____
 A) {8} B) {12} C) {-8} D) {-12}

Set up a linear equation and solve it. Use the variable x in your equation.

- 36) Bob is saving to buy a car. The total amount that he needs is \$13,000. The amount that he has saved so far is \$6000. How much more does Bob need? 36) _____
 A) $6000 + x = 13,000$; \$7000 B) $6000 - x = 13,000$; \$7002
 C) $6000 + x = 13,000$; \$7002 D) $6000 - x = 13,000$; \$7000
- 37) A weatherman reports that since 6:00 am this morning the temperature has dropped by 15°F to the current temperature of -2°F . What was the temperature at 6:00 am ? 37) _____
 A) $x - 15 = -2$; 13°F B) $x + 15 = -2$; -13°F
 C) $x + 15 = -2$; 13°F D) $x - 15 = -2$; -13°F
- 38) Betsy has a balance of $-\$517$ on her credit card. What payment should she make to get the balance to $-\$250$? 38) _____
 A) $-517 + x = -250$; \$367 B) $-250 + x = -517$; \$367
 C) $-517 + x = -250$; \$267 D) $-250 + x = -517$; \$267
- 39) A weatherman reports that since 6:00 am this morning the temperature has dropped by 20°F to the current temperature of 47°F . What was the temperature at 6:00 am ? 39) _____
 A) $x + 20 = 47$; 27°F B) $x - 20 = 47$; 27°F
 C) $x + 20 = 47$; 67°F D) $x - 20 = 47$; 67°F
- 40) One lap around a running track is 400 meters. How many laps will you run if you travel 7200 meters? 40) _____
 A) $200x = 7200$; 9 laps B) $7200x = 400$; 36 laps
 C) $400x = 7200$; 18 laps D) $100x = 7200$; 72 laps
- 41) The Smith family is planning a 329-mile trip. They plan to travel at an average speed of 47 miles per hour. Determine the number of hours the trip will take. 41) _____

A) $47 = 329x$; 9 hours

B) $329 = 47x$; 7 hours

C) $329 = 47x$; 6 hours

D) $47 = 329x$; 8 hours

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

42) While solving an equation, why can't you multiply both sides of the equation by zero? 42) _____

43) What is the Multiplication Property of Equality? 43) _____

44) Write an equation that requires the use of the multiplication property of equality, where 44) _____
both sides must be multiplied by $\frac{13}{5}$ and where the solution is a negative number.

45) Write an equation that requires the use of the multiplication property of equality, where 45) _____
both sides must be multiplied by 100 and where the solution isn't an integer.

46) Your friend solves an equation as follows: 46) _____

$$x - 23 = 49$$

$$x = 49 - 23$$

$$x = 26$$

Did your friend make a mistake? If so, identify the mistake and provide a correct solution.

47) Your friend solves an equation as follows: 47) _____

$$\frac{5}{6}x = 6$$

$$x = 6 \cdot \frac{5}{6}$$

$$x = 5$$

Did your friend make a mistake? If so, identify the mistake and provide a correct solution.

48) What is the first step to solve an equation in the form $b + x = a$? What is the solution of the equation? 48) _____

49) What is the first step to solve an equation in the form $\frac{a}{b}x = \frac{c}{d}$? What is the solution of the equation? 49) _____

50) Write a linear equation that can be solved using the multiplication property of equality 50) _____
and that has $x = \frac{2}{5}$ as a solution.

51) Write a linear equation that can be solved using the addition property of equality and 51) _____
that has $x = -11$ as a solution.

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

Solve.

52) $9r + 2 = 56$

A) {6}

B) {45}

C) {4}

D) {49}

52) _____

53) $7n - 6 = 36$

A) {39}

B) {35}

C) {11}

D) {6}

53) _____

54) $10x - 6x = 24$

A) {20}

B) {6}

C) {28}

D) $\left\{\frac{1}{6}\right\}$

54) _____

55) $57 = 7x - 6$

A) {56}

B) {9}

C) {14}

D) {60}

55) _____

56) $28 = 4x - 4$

A) {11}

B) {32}

C) {8}

D) {28}

56) _____

57) $156 = 11x + 13$

A) {132}

B) {1}

C) {13}

D) {136}

57) _____

58) $70 = 10x + 4x$

A) {5}

B) {84}

C) {56}

D) $\left\{\frac{1}{5}\right\}$

58) _____

59) $-5q = -34.1 - 1.9q$

A) {7.2}

B) {-37}

C) {11}

D) {6.8}

59) _____

60) $-3.1 = y + 3.3$

A) {-0.2}

B) {6.4}

C) {0.2}

D) {-6.4}

60) _____

61) $-5 = z - 4.3$

A) {-0.7}

B) {0.7}

C) {9.3}

D) {-9.3}

61) _____

62) $-10y - 6 = -2 + 7y$

A) \emptyset

B) $\left\{-\frac{4}{17}\right\}$

C) $\left\{-\frac{17}{4}\right\}$

D) $\left\{\frac{17}{4}\right\}$

62) _____

63) $2b - 6 = -5 - 7b$

A) $\left\{\frac{1}{9}\right\}$

B) $\left\{\frac{5}{11}\right\}$

C) $\{9\}$

D) $\{-9\}$

63) _____

64) $-6b + 7 + 4b = -3b + 12$

A) {12}

B) \emptyset

C) {-7}

D) {5}

64) _____

65) $-4y + 5 = 1 + 5y$

A) $\left\{\frac{1}{6}\right\}$

B) $\left\{\frac{4}{9}\right\}$

C) $\left\{-\frac{9}{4}\right\}$

D) $\left\{\frac{9}{4}\right\}$

65) _____

66) $-7y + 8 = 7 + 5y$

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

B) $\{-12\}$

C) $\{12\}$

D) $\left\{-\frac{2}{15}\right\}$

66) _____

- 67) $-9w + 4 = -3 + 3w - 10w$
 A) $\left\{\frac{2}{7}\right\}$ B) \mathcal{R} C) $\left\{-\frac{2}{7}\right\}$ D) $\left\{\frac{7}{2}\right\}$ 67) _____
- 68) $3y - 6 + y = 39 + 2y - 3y$
 A) $\left\{\frac{33}{4}\right\}$ B) $\{11\}$ C) $\{9\}$ D) $\left\{\frac{33}{5}\right\}$ 68) _____
- 69) $2x + 2 + 5x = 8x + 2 - x$
 A) $\left\{\frac{1}{7}\right\}$ B) \mathcal{R} C) $\{0\}$ D) $\{7\}$ 69) _____
- 70) $4x + 3 + 3x = 8x + 2 - x$
 A) $\left\{\frac{1}{7}\right\}$ B) \emptyset C) $\{7\}$ D) $\{0\}$ 70) _____
- 71) $-8.1q + 1.6 = -24 - 1.7q$
 A) $\{3.4\}$ B) $\{4\}$ C) $\{3.2\}$ D) $\{-32\}$ 71) _____
- 72) $11(x - 44) = 22$
 A) $\{42\}$ B) $\{44\}$ C) $\{22\}$ D) $\{46\}$ 72) _____
- 73) $3(3x - 1) = 12$
 A) $\left\{\frac{13}{9}\right\}$ B) $\left\{\frac{11}{9}\right\}$ C) $\{1\}$ D) $\left\{\frac{5}{3}\right\}$ 73) _____
- 74) $9x - (2x - 1) = 2$
 A) $\left\{-\frac{1}{7}\right\}$ B) $\left\{-\frac{1}{11}\right\}$ C) $\left\{\frac{1}{7}\right\}$ D) $\left\{\frac{1}{11}\right\}$ 74) _____
- 75) $6x + 7(-3x - 5) = -48 - 2x$
 A) $\left\{\frac{83}{17}\right\}$ B) $\left\{\frac{83}{13}\right\}$ C) $\{1\}$ D) $\{-1\}$ 75) _____
- 76) $\frac{1}{3}(6x - 9) = \frac{1}{5}(15x - 10)$
 A) $\{-1\}$ B) $\left\{\frac{1}{5}\right\}$ C) $\{1\}$ D) $\{-5\}$ 76) _____
- 77) $3(x + 6) - (3x + 18) = 0$
 A) $\{6\}$ B) \mathcal{R} C) $\{0\}$ D) \emptyset 77) _____
- 78) $(y - 8) - (y + 2) = 5y$
 A) $\left\{-\frac{5}{4}\right\}$ B) $\{-2\}$ C) $\left\{-\frac{5}{3}\right\}$ D) $\left\{-\frac{3}{5}\right\}$ 78) _____
- 79) $4(3x + 4) = 4(2x + 12)$
 A) $\{16\}$ B) $\{-4\}$ C) $\{4\}$ D) $\{8\}$ 79) _____
- 80) $9(4w - 2) = 12(3w + 10)$
 A) \emptyset B) \mathcal{R} C) $\{138\}$ D) $\{0\}$ 80) _____

- 81) $\frac{1}{3}(r + 6) = \frac{1}{6}(r + 8)$ 81) _____
 A) {4} B) {3} C) {-4} D) {-12}
- 82) $-5.4x = -10.8 - 1.8x$ 82) _____
 A) {3} B) {2.3} C) {2.0} D) {-14}
- 83) $3.5a - 11 = 4.5a - 2$ 83) _____
 A) {-9} B) {-4} C) {-8} D) {-10}
- 84) $-2.7b + 1.4 = -1.0b - 7.1$ 84) _____
 A) {3.1} B) {5} C) {-10} D) {3.5}
- 85) $0.6x - 0.5(80 + x) = -0.45(80)$ 85) _____
 A) {30} B) {40} C) {50} D) {20}
- 86) $0.05(200 + x) - 0.08x = -0.055(200)$ 86) _____
 A) {710} B) {690} C) {350} D) {700}
- 87) $-0.27(8000) + 0.6x = 0.02(8000 + x)$ 87) _____
 A) {4100} B) {3900} C) {4000} D) {2000}
- 88) $\frac{4}{5} + \frac{1}{6}x = 3$ 88) _____
 A) $\left\{-\frac{6}{5}\right\}$ B) $\left\{\frac{54}{5}\right\}$ C) $\left\{-\frac{5}{6}\right\}$ D) $\left\{\frac{66}{5}\right\}$
- 89) $\frac{1}{7} + z = \frac{6}{7}$ 89) _____
 A) {-1} B) {1} C) $\left\{\frac{5}{7}\right\}$ D) $\left\{-\frac{5}{7}\right\}$
- 90) $\frac{1}{5}a - \frac{1}{5} = -2$ 90) _____
 A) {11} B) {9} C) {-11} D) {-9}
- 91) $\frac{1}{5}f - 5 = 1$ 91) _____
 A) {30} B) {-20} C) {20} D) {-30}
- 92) $\frac{2}{5}x - \frac{1}{3}x = 2$ 92) _____
 A) {-60} B) {60} C) {-30} D) {30}
- 93) $\frac{1}{4}p - \frac{3}{8}p = 2$ 93) _____
 A) {14} B) {-16} C) {-14} D) {16}

94)

$$\frac{2}{3}t + \frac{6}{5}t = 2t - \frac{12}{5}t$$

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

B) {18}

C) {0}

D) $\left\{-\frac{36}{5}\right\}$

95) $\frac{12}{7}t - \frac{1}{21}t = t - \frac{10}{3}t$

A) $\left\{\frac{10}{21}\right\}$

B) $\left\{-\frac{30}{7}\right\}$

C) {-5}

D) {0}

96) $\frac{13}{12}x + \frac{1}{12}x = 8x + \frac{1}{6} + \frac{11}{12}x$

A) $\left\{-\frac{2}{93}\right\}$

B) $\left\{\frac{1}{93}\right\}$

C) $\left\{\frac{2}{99}\right\}$

D) $\left\{-\frac{1}{93}\right\}$

Solve the literal equation for the specified variable.

97) $8x + y = 9$ for y

A) $y = -8x - 9$

B) $y = 8x - 9$

C) $y = 8x + 9$

D) $y = -8x + 9$

98) $8x + 4y = 5$ for y

A) $y = \frac{8x - 5}{4}$

B) $y = \frac{-8x - 5}{4}$

C) $y = \frac{-8x + 5}{4}$

D) $y = -32x + 20$

99) $A = \frac{1}{2}bh$ for h

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

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

C) $h = \frac{Ab}{2}$

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

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

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

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

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

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

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

A) $s = a + b - r$

B) $s = r(a + b)$

C) $s = \frac{a + b}{r}$

D) $s = \frac{a}{r} + b$

102) $x = \frac{w + y + z}{3}$ for y

A) $y = x - w - z - 3$

C) $y = 3x - 3w - 3z$

B) $y = 3x + w + z$

D) $y = 3x - w - z$

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

A) $s_3 = s_1 + P - s_2$

B) $s_3 = P + s_1 + s_2$

C) $s_3 = P - s_1 - s_2$

D) $s_3 = P - s_1 - s_2$

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95) _____

96) _____

97) _____

98) _____

99) _____

100) _____

101) _____

102) _____

103) _____

$$D) s_3 = s_1 + s_2 - P$$

104) $d = rt$ for t

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

B) $t = dr$

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

D) $t = d - r$

104) _____

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

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

B) $W = P - L$

C) $W = d - 2L$

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

105) _____

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

A) $\frac{A}{r} = P(1 + nr)$

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

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

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

106) _____

Solve the problem.

107) To convert a Fahrenheit temperature to a Celsius temperature, we subtract 32 from the

$$\frac{5}{9}$$

Fahrenheit temperature and then multiply the result by $\frac{5}{9}$. The average temperature on a planet in a solar system is 158°F. What is this temperature in degrees Celsius?

A) 98°C

B) 316.4°C

C) 70°C

D) 55.8°C

107) _____

108) To convert a Fahrenheit temperature to a Celsius temperature, we subtract 32 from the

$$\frac{5}{9}$$

Fahrenheit temperature and then multiply the result by $\frac{5}{9}$. When the temperature is 80°F, what is the temperature in degrees Celsius? Round to the nearest tenth of a degree.

A) 12.4°C

B) 112.0°C

C) 176.0°C

D) 26.7°C

108) _____

109) To convert a Fahrenheit temperature to a Celsius temperature, we subtract 32 from the

$$\frac{5}{9}$$

Fahrenheit temperature and then multiply the result by $\frac{5}{9}$. When the temperature is below 9°F the first grade students are not allowed to play outside. What is this temperature in degrees Celsius?

A) -12.8°C

B) 15.8°C

C) 27.0°C

D) 48.2°C

109) _____

110) To convert a Celsius temperature to a Fahrenheit temperature, we multiply the Celsius

$$\frac{9}{5}$$

temperature by $\frac{9}{5}$ and add 32 to the result. When the temperature is 45°C, what is the temperature in degrees Fahrenheit?

A) 138.6°F

B) 113°F

C) 56.8°F

D) 87.4°F

110) _____

111) To convert a Celsius temperature to a Fahrenheit temperature, we multiply the Celsius

$$\frac{9}{5}$$

temperature by $\frac{9}{5}$ and add 32 to the result. A chemical must be stored at 35°C. What is this temperature in degrees Fahrenheit? Round to the nearest tenth of a degree.

A) 120.6°F

B) 51.4°F

C) 3.8°F

D) 95.0°F

111) _____

112) If 19 is added to a number and the sum is doubled, the result is 11 less than the number. Find the number.

A) 27

B) -49

C) -8

D) -27

112) _____

- 113) The sum of twice a number and 18 less than the number is the same as the difference between -6 and the number. What is the number? 113) _____
 A) 6 B) 2 C) 3 D) 4
- 114) 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 \$67 under this promotional deal, how many minutes of phone calls did he make? Round to the nearest integer, if necessary. 114) _____
 A) 3 min B) 1640 min C) 10 min D) 1040 min
- 115) A car rental agency advertised renting a luxury, full-size car for \$34.95 per day and \$0.39 per mile. If you rent this car for 2 days, how many whole miles can you drive if you only have \$200 to spend. 115) _____
 A) 333 miles B) 100 miles C) 418 miles D) 10 miles

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question. Provide an appropriate response.

- 116) Find the mistake in the following solution. 116) _____

$4x + 7y = 11;$ solve for y

line 1	$4x + 7y = 11$
line 2	$\underline{- 4x} \qquad \qquad \underline{- 4x}$
line 3	$7y = 11 - 4x$
line 4	$7y = 11 - 4x$
line 5	$\underline{- 7} \qquad \qquad \underline{- 7}$
line 6	$y = 4 - 4x$

- 117) The solution set for the equation $9(4s - 5) = 36s - 45$ is given as 0. Is this correct? Explain. 117) _____
- 118) Write the steps you would use to solve this equation: $7(x - 1) + 3x = - 5x$. 118) _____
- 119) Find the missing value such that $x = 3$ is a solution of $8x - 3 = ?$. 119) _____
- 120) Find the missing value such that $x = 2$ is a solution to $7x + 18x - 4 = ? + 2$. 120) _____
- 121) Write a linear equation with parentheses that is a contradiction. 121) _____
- 122) Write a linear equation that has $x = 6$ as a solution. 122) _____

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

- 123) The sum of two consecutive even integers is 78. Find the larger number. 123) _____
 A) 40 B) 36 C) 48 D) 34
- 124) The sum of the page numbers on the facing pages of a book is 333. Find the larger page number. 124) _____
 A) 177 B) 167 C) 162 D) 165
- 125) The difference between two positive integers is 34. One integer is three times as great as the other. Find the integers. 125) _____

A) 17 and 51

B) 17 and 34

C) 51 and 85

D) 34 and 51

126) If -18 is added to a number and the sum is doubled, the result is -9 less than the number. Find the number. 126) _____

A) 27

B) 45

C) -27

D) 9

127) The sum of twice a number and 9 less than the number is the same as the difference between -29 and the number. What is the number? 127) _____

A) -5

B) -4

C) -6

D) -10

128) The sum of two consecutive integers is -213. Find the larger integer. 128) _____

A) -108

B) -106

C) -105

D) -107

129) The sum of three consecutive integers is 483. Find the integers. 129) _____

A) 159, 160, 161

B) 161, 162, 163

C) 160, 161, 162

D) 159, 161, 163

130) The sum of three consecutive even integers is 270. Find the integers. 130) _____

A) 90, 92, 94

B) 83, 84, 85

C) 92, 94, 96

D) 88, 90, 92

131) If three times the smaller of two consecutive integers is added to four times the larger, the result is 74. Find the smaller integer. 131) _____

A) 9

B) 11

C) 30

D) 10

132) 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. 132) _____

A) 58

B) 31

C) 27

D) 29

133) Find the length of a rectangular lot with a perimeter of 106 meters if the length is 5 meters more than the width. 133) _____

A) 29 meters

B) 24 meters

C) 53 meters

D) 58 meters

134) A square plywood platform has a perimeter which is 10 times the length of a side, decreased by 12. Find the length of a side. 134) _____

A) 2

B) 1

C) 6

D) 8

135) A rectangular Persian carpet has a perimeter of 224 inches. The length of the carpet is 24 inches more than the width. What are the dimensions of the carpet? 135) _____

A) 100 inches, 124 inches

B) 88 inches, 112 inches

C) 68 inches, 92 inches

D) 44 inches, 68 inches

136) A triangular lake-front lot has a perimeter of 1600 feet. One side is 100 feet longer than the shortest side, while the third side is 300 feet longer than the shortest side. Find the lengths of all three sides. 136) _____

A) 500 feet, 500 feet, 500 feet

B) 100 feet, 200 feet, 300 feet

C) 400 feet, 500 feet, 700 feet

D) 500 feet, 600 feet, 800 feet

137) A circle has a circumference of 50π meters. Find the radius of the circle. 137) _____

A) 8 meters

B) 13 meters

C) 50 meters

D) 25 meters

138) The perimeter of a rectangular room is 134 feet. Find the length and width of the room if the length is 7 feet longer than twice the width. 138) _____

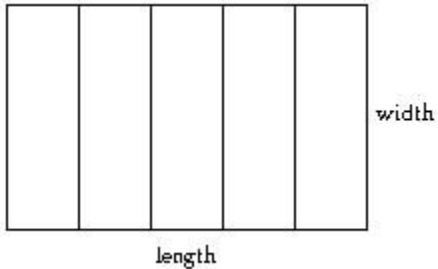
A) width = 25 feet; length = 57 feet

B) width = 40 feet; length = 94 feet

C) width = 30 feet; length = 37 feet

D) width = 20 feet; length = 47 feet

- 139) A rectangular horse pen is to be fenced and divided into five partitions as shown. The length of the fenced-in area is to be twice the width, and the total amount of fencing to be used is 270 feet. Find the length and width of the fenced-in area.



A) length = 54 feet, width = 27 feet
C) length = 29 feet, width = 27 feet

B) length = 23.2 feet, width = 11.6 feet
D) length = 60 feet, width = 30 feet

- 140) The complement of an angle measures 20° less than the angle. Find the measure of the angle.

A) 145°

B) 45°

C) 55°

D) 160°

140) _____

- 141) Find the measure of an angle whose supplement is 3 times the measure of its complement.

A) 22.5°

B) 45°

C) 60°

D) 30°

141) _____

- 142) Find the measure of an angle if its supplement measures 63° less than 4 times its complement.

A) 19°

B) 39°

C) 75°

D) 150°

142) _____

- 143) Find the measure of an angle, if its supplement measures 62° more than twice its complement.

A) 124°

B) 62°

C) 72°

D) 28°

143) _____

- 144) Find the measure of an angle such that the difference between its supplement and 4 times its complement is 30° .

A) 71°

B) 35°

C) 142°

D) 70°

144) _____

- 145) Find the measure of an angle such that the sum of the measures of its complement and its supplement is 118° .

A) 31°

B) 76°

C) 71°

D) 62°

145) _____

- 146) Two angles of a triangle are 10° and 90° . What is the measure of the third angle?

A) 80°

B) -10°

C) 100°

D) 260°

146) _____

- 147) 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) 155°

B) 65°

C) 31°

D) 25°

147) _____

- 148) The second angle of a triangle is 4 times as large as the first. The third angle is 50° more than the sum of the other two angles. Find the measure of the second angle.

A) 52°

B) $\frac{1}{3^4}^\circ$

C) 65°

D) 13°

148) _____

- 149) The sum of the measures of the angles of any triangle is 180° . In triangle ABC, angles A and B have the same measure, while the measure of angle C is 75° larger than each of A and B. What are the measures of the three angles?

A) A and B: 45° ; C: 90°

B) A and B: 110° ; C: 35°

149) _____

C) A and C: 90° ; B: 45°

D) A and B: 35° ; C: 110°

150) Jay drove 385 kilometers at the average rate of 77 kilometers per hour. How long did the trip take? 150) _____

A) 4 hours

B) 5 hours

C) 6 hours

D) $\frac{1}{5}$ hour

151) Janet drove 350 kilometers and the trip took 5 hours. How fast was Janet traveling? 151) _____

A) $\frac{1}{70}$ kilometer/hour

B) 71 kilometers/hour

C) 70 kilometers/hour

D) 1750 kilometers/hour

152) Jill is 12 kilometers away from Joe. Both begin to walk toward each other at the same time. Jill walks at 1 km/hr. They meet in 4 hours. How fast is Joe walking? 152) _____

A) 1.5 kilometers/hour

B) 4 kilometers/hour

C) 2 kilometers/hour

D) 8 kilometers/hour

153) From a point on a straight road, two cars are driven in opposite directions, one at 50 miles per hour and the other at 40 miles per hour. In how many hours will they be 450 miles apart? 153) _____

A) 5 hours

B) 4 hours

C) 6 hours

D) Not enough information

154) From a point on a straight road, John and Fred ride bicycles in opposite directions. John rides 10 miles per hour and Fred rides 11 miles per hour. In how many hours will they be 105 miles apart? 154) _____

A) 6 hours

B) 5 hours

C) 4 hours

D) Not enough information

155) From a point on a river, two boats are driven in opposite directions, one at 8 miles per hour and the other at 13 miles per hour. In how many hours will they be 84 miles apart? 155) _____

A) 4 hours

B) 5 hours

C) 6 hours

D) 1 hour

156) A car traveling 65 miles per hour passes a bus traveling 59 in the same direction on the highway. If they maintain their speeds, how long will it take them to be 21 miles apart? 156) _____

A) 7 hours

B) 4.5 hours

C) 3.5 hours

D) 4 hours

157) _____ 157) _____

On her way to a holiday weekend, Nancy drove $2\frac{1}{2}$ hours in rush-hour traffic. When traffic eased up, she was able to increase her speed by 40 miles per hour and drove another $4\frac{1}{2}$ hours. If the entire trip was 348 miles, how fast did she drive in rush-hour traffic?

A) 26 mph

B) 24 mph

C) $\frac{1}{25}$ mph

D) 25 mph

158) Andy has some \$10 bills and some \$20 bills in a shoebox under his bed. He has a total of 67 bills worth a total of \$970. How many \$20 bills does he have? 158) _____

A) 29

B) 30

C) 27

D) 32

159) There are two types of tickets for a school play: child tickets that sell for \$4 each and adult tickets that sell for \$5 each. A total of 99 tickets are sold, bringing in a total of \$464. How many adults are sold? 159) _____

A) 68

B) 69

C) 72

D) 66

- 160) There are two types of tickets for a school play: student tickets and tickets for the general public. The total cost for one student ticket and one general public ticket is \$11. The total cost for 14 student tickets and 12 general public tickets is \$138. How much does a general public ticket cost? 160) _____
- A) \$8 B) \$3 C) \$10 D) \$7
- 161) There are two types of tickets for a school play: student tickets and tickets for the general public. The total cost for one student ticket and one general public ticket is \$11. The total cost for 14 student tickets and 9 general public tickets is \$119. How much does a student ticket cost? 161) _____
- A) \$7 B) \$5 C) \$4 D) \$3
- 162) Matthew has two different stocks. One of the stocks is worth \$6 more per share than the other. He has 12 shares of the more valuable stock and 40 shares of the other stock. His total assets in stocks is \$1736. How much is the more expensive stock worth per share? 162) _____
- A) \$6 per share B) \$38 per share C) \$26 per share D) \$40 per share
- 163) Matthew has two different stocks. One of the stocks is worth twice as much per share as the other. He has 11 shares of the more valuable stock and 38 shares of the other stock. His total assets in stocks is \$2100. How much is the more expensive stock worth per share? 163) _____
- A) \$74 per share B) \$70 per share C) \$76 per share D) \$68 per share
- 164) Matthew has two different stocks. One of the stocks is worth twice as much per share as the other. He has 12 shares of the more valuable stock and 39 shares of the other stock. His total assets in stocks is \$1512. How much is the less expensive stock worth per share? 164) _____
- A) \$24 per share B) \$44 per share C) \$22 per share D) \$29 per share
- 165) 65% of 600 is what number? 165) _____
- A) 39 B) 390 C) 3900 D) 3.9
- 166) 0.4% of 8000 is what number? 166) _____
- A) 3 B) 3200 C) 320 D) 32
- 167) What number is 82% of 315? 167) _____
- A) 2583 B) 25.83 C) 25,830 D) 258.3
- 168) What number is $13\frac{1}{5}\%$ of 49? Express your answer as a mixed number. 168) _____
- A) $\frac{117}{250}$ B) $\frac{4}{646}$ C) $\frac{17}{64}$ D) $\frac{1617}{2500}$
- 169) 10.81 is 23% of what number? 169) _____
- A) 4.7 B) 47 C) 470 D) 0.47
- 170) 17.8 is $14\frac{2}{7}\%$ of what number? 170) _____
- A) 124.6 B) 1.246 C) 106.8 D) 1.068

- 171) 22.57 is what percent of 37? 171) _____
 A) 61% B) 0.61% C) 6.1% D) 610%
- 172) 939 is what percent of 713? Round to the nearest tenth of a percent. 172) _____
 A) 75.9% B) 131.7% C) 0.1% D) 1.3%
- 173) 61.6 is what percent of 8? Round to the nearest tenth of a percent. 173) _____
 A) 770.0% B) 1.3% C) 7700.0% D) 13.0%
- 174) On a biology test, a student got 25 questions correct but did not pass. On a second attempt, the student got 35 questions correct. What was the percent of increase in correct answers? 174) _____
 A) 60% B) 28.6% C) 10% D) 40%
- 175) The price of a printer was reduced from \$400 to \$220. What was the percent of decrease? Round your answer to the nearest tenth, if necessary. 175) _____
 A) 50% B) 45% C) 55% D) 81.8%
- 176) During one year, the Green's real estate bill included \$380 for city services. The fire department received 27% of that amount. How much money went to the fire department? 176) _____
 A) \$73.00 B) \$82.60 C) \$27.74 D) \$102.60
- 177) If Gloria received a 7 percent raise and is now making \$24,610 a year, what was her salary before the raise? Round to the nearest dollar if necessary. 177) _____
 A) \$22,610 B) \$22,887 C) \$23,000 D) \$24,000
- 178) Stevie bought a stereo for \$225 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. 178) _____
 A) \$325.00 B) \$237.50 C) \$337.50 D) \$450.00
- 179) At the end of the day, a storekeeper had \$1155 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. 179) _____
 A) \$60 B) \$46 C) \$55 D) \$58
- 180) Brand X copier advertises that its copiers run 15% longer between service calls than its competitor. If Brand X copiers run 36,300 copies between service calls, how many copies would the competitor run (to the nearest copy)? 180) _____
 A) 41,745 copies B) 31,565 copies C) 30,855 copies D) 19,622 copies
- 181) After spending \$1950 for tables and \$3050 for chairs, a convention center manager finds that 35% of his original budget remains. Find the amount that remains. Round to the nearest dollar if necessary. 181) _____
 A) \$7692 B) \$1750 C) \$2692 D) \$4692
- 182) Midtown Antiques collects 4% sales tax on all sales. If total sales including tax are \$1868.80, find the portion that is the tax. Round to the nearest cent if necessary. 182) _____
 A) \$61.88 B) \$1796.92 C) \$71.88 D) \$74.75
- 183) In a local election, 24,100 people voted. This was an increase of 11% over the last election. How many people voted in the last election? Round to the nearest whole person if necessary. 183) _____
 A) 21,712 people B) 26,751 people C) 21,449 people D) 27,079 people

- 184) Kevin invested money in a savings account at a rate of 5% simple interest. After one year, he has \$3864.00 in the account. How much did Kevin originally invest? 184) _____
 A) \$40.67 B) \$3859.00 C) \$3680.00 D) \$4067.37
- 185) Helen Weller invested \$14,000 in an account that pays 10% simple interest. How much additional money must be invested in an account that pays 13% simple interest so that the average return on the two investments amounts to 11%? 185) _____
 A) \$10,000 B) \$14,000 C) \$11,000 D) \$7000
- 186) Mardi received an inheritance of \$60,000. She invested part at 12% and deposited the remainder in tax-free bonds at 9%. Her total annual income from the investments was \$6900. Find the amount invested at 12%. 186) _____
 A) \$49,000 B) \$50,000 C) \$53,100 D) \$25,000
- 187) Walt made an extra \$9000 last year from a part-time job. He invested part of the money at 7% and the rest at 6%. He made a total of \$600 in interest. How much was invested at 6%? 187) _____
 A) \$6000 B) \$3000 C) \$4500 D) \$7000
- 188) Roberto invested some money at 6%, and then invested \$2000 more than twice this amount at 12%. His total annual income from the two investments was \$3540. How much was invested at 12%? 188) _____
 A) \$22,000 B) \$6000 C) \$2400 D) \$24,000
- 189) A writer received \$35,000 as royalty for her book. She invested part of the money in bonds paying 6% interest annually. The rest she invested in a life insurance policy paying 9% interest annually. If the total interest from the investments after 1 year is \$2850, how much did she invest in bonds? 189) _____
 A) \$10,000 B) \$26,000 C) \$25,000 D) \$11,000
- 190) Tim invested \$84,000 in two plans. Plan 1 is at an APR of 8%, and plan 2 is at an APR of 10%. If he invested \$5000 less in plan 2 than in plan 1, how much can he expect to earn in one year? 190) _____
 A) \$3950 B) \$7760 C) \$3560 D) \$7510
- 191) Annika invested in a plan that has an APR of 5%. She invested in a 9% APR account \$2300 more than she invested in the 5% account. If the total interest from the investments after 1 year is \$2727, then what is the total amount that she invested? 191) _____
 A) \$38,300 B) \$33,700 C) \$20,300 D) \$36,000
- 192) It is necessary to have a 40% antifreeze solution in the radiator of a certain car. The radiator now has 70 liters of 20% solution. How many liters of this should be drained and replaced with 100% antifreeze to get the desired strength? 192) _____
 A) 35 L B) 23.3 L C) 17.5 L D) 28 L
- 193) How many liters of a 30% alcohol solution must be mixed with 50 liters of a 70% solution to get a 50% solution? 193) _____
 A) 5 L B) 10 L C) 50 L D) 100 L
- 194) In a chemistry class, 8 liters of a 4% silver iodide solution must be mixed with a 10% solution to get a 6% solution. How many liters of the 10% solution are needed? 194) _____
 A) 5.0 L B) 4.0 L C) 8.0 L D) 3.0 L
- 195) A merchant has coffee worth \$40 a pound that she wishes to mix with 60 pounds of coffee worth \$90 a 195) _____

pound to 195)

get a mixture that can be sold for \$70 a pound. How many pounds of the \$40 coffee should be used?

- A) 40 pounds B) 20 pounds C) 50 pounds D) 100 pounds

196) How many ounces of a 35% saline solution must be added to 50 ounces of a 18% saline solution to make a 25% saline solution? 196) _____

- A) 70 ounces B) 5 ounces C) 1 ounce D) 35 ounces

197) How many liters of pure baking soda must be added to 200 liters of a 30% baking soda solution to get a 60% baking soda solution? 197) _____

- A) 100 liters B) 200 liters C) 150 liters D) 250 liters

Solve the proportion.

198) $\frac{n}{54} = \frac{1}{18}$ 198) _____

- A) {4} B) {972} C) $\left\{\frac{1}{3}\right\}$ D) {3}

199) $\frac{1}{2} = \frac{n}{19}$ 199) _____

- A) $\left\{9\frac{1}{2}\right\}$ B) $\left\{\frac{1}{38}\right\}$ C) {38} D) {19}

200) $\frac{33}{110} = \frac{12}{n}$ 200) _____

- A) $\left\{\frac{1}{40}\right\}$ B) {1287} C) $\left\{\frac{396}{110}\right\}$ D) {40}

201) $\frac{4}{n} = \frac{20}{25}$ 201) _____

- A) $\left\{\frac{16}{5}\right\}$ B) $\left\{\frac{5}{16}\right\}$ C) {50} D) {5}

202) $\frac{2n-3}{8} = \frac{n}{9}$ 202) _____

- A) $\left\{\frac{9}{10}\right\}$ B) $\left\{\frac{27}{10}\right\}$ C) $\left\{\frac{10}{27}\right\}$ D) $\left\{\frac{2}{9}\right\}$

203) $\frac{7}{3} = \frac{n+4}{9}$ 203) _____
 A) $\left\{\frac{59}{3}\right\}$ B) $\{17\}$ C) $\{25\}$ D) $\left\{\frac{3}{16}\right\}$

204) $\frac{n+5}{12} = \frac{11}{2}$ 204) _____
 A) $\left\{\frac{127}{2}\right\}$ B) $\{122\}$ C) $\{61\}$ D) $\{71\}$

205) $\frac{n+10}{6} = \frac{n+1}{5}$ 205) _____
 A) $\{44\}$ B) $\left\{\frac{44}{5}\right\}$ C) $\{4\}$ D) $\{1\}$

206) $\frac{2n-8}{3} = \frac{4n+5}{5}$ 206) _____
 A) $\left\{\frac{25}{2}\right\}$ B) $\left\{-\frac{25}{22}\right\}$ C) $\left\{-\frac{55}{2}\right\}$ D) $\left\{\frac{5}{2}\right\}$

207) $\frac{8n}{2} = \frac{2n+10}{5}$ 207) _____
 A) $\left\{\frac{5}{9}\right\}$ B) $\{20\}$ C) $\left\{\frac{5}{11}\right\}$ D) $\{36\}$

Solve the problem.

208) If a boat uses 25 gallons of gas to go 76 miles, how many miles can the boat travel on 100 gallons of gas? 208) _____
 A) 304 miles B) 324 miles C) 19 miles D) 608 miles

209) If 4 hours are required to type 20 pages, how many hours would be required to type 35 pages? 209) _____
 A) 7 hours B) 8 hours C) 3 hours D) 2 hours

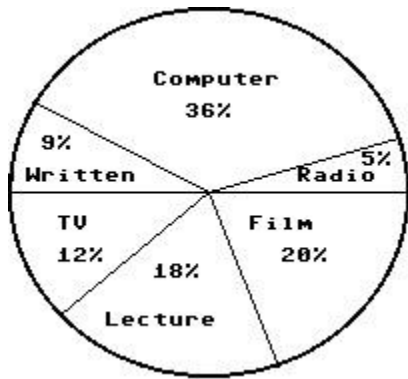
210) In a sample of 86 widgets, 4 were defective. How many defective widgets would you expect in a sample of 516 widgets? 210) _____
 A) 24 widgets B) 22 widgets C) 54 widgets D) 27 widgets

211) A label printer prints 6 pages of labels in 2.1 seconds. How long will it take to print 312 pages of labels? 211) _____
 A) 113.2 seconds B) 112.2 seconds C) 111.2 seconds D) 109.2 seconds

212) Dr. Smith can see 9 patients in 3 hours. At this rate, how long would it take him to see 27 patients? 212) _____
 A) 9 hours B) 81 hours C) 27 hours D) 8 hours

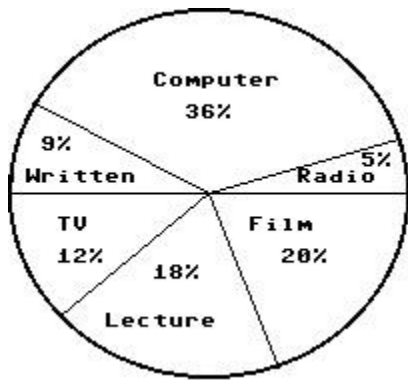
213) A quality-control inspector examined 250 calculators and found 6 of them to be defective. At this rate, how many defective calculators will there be in a batch of 16,500 calculators? 213) _____
 A) 396 calculators B) 1500 C) 66 calculators D) 11 calculators
 calculators

214) A survey showed that students had these preferences for instructional materials. Use the graph to answer the question. 214) _____



About how many students would you expect to prefer computers in a school of 600 students?
 A) About 36 students
 B) About 216 students
 C) About 108 students
 D) About 120 students

215) A survey showed that students had these preferences for instructional materials. Use the graph to answer the question. 215) _____



About how many students would you expect to prefer lectures in a school of 550 students?
 A) About 18 students
 B) About 198 students
 C) About 99 students
 D) About 110 students

Convert the given quantity to the desired unit. Round to the nearest tenth if necessary.

216) 25 in. to cm 216) _____
 A) 82 cm
 B) 9.8 cm or 9.8 cm
 C) 7.6 cm
 D) 63.5 cm or 64.1 cm

217) 84 km to mi 217) _____
 A) 135.5 mi or 135.2 mi
 B) 25.6 mi
 C) 275.5 mi
 D) 52.1 mi or 52.2 mi

218) 34 m to ft 218) _____
 A) 111.5 ft
 B) 86.4 ft or 87.2 ft
 C) 13.4 ft or 13.3 ft
 D) 10.4 ft

219) 157 lb to kg 219) _____
 A) 47.9 kg
 B) 71.3 kg or 71.4 kg
 C) 345.8 kg or 345.4 kg
 D) 514.8 kg

- 220) 48 g to oz
 A) 1371.4 oz or 1360.8 oz
 C) 1.7 oz

- B) 21.8 oz
 D) 105.7 oz or 105.6 oz

220) _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

- 221) Jessica wanted to solve the following problem: The price of an item increased by 15%. The amount of the increase was \$86. What was the price of the item before the increase? She wrote the following equation: $15\% \times 86 = x$. Will this equation will give her the correct answer? If not, what is the correct equation? 221) _____
- 222) The price of an item is reduced by 20% in a sale. Two weeks later the price is increased to 20% more than the sale price. Has the item been restored to its original price? If not, is its price now higher or lower than the original price? Explain. 222) _____
- 223) Roberto is an employee of a store and receives 20% discount off all items in the store. During a sale, the price of a jacket is reduced by \$15. Roberto will receive both his 20% discount and the \$15 off. Which is better for Roberto: to take his 20% discount first and then subtract \$15, or to subtract \$15 first and then take his 20% discount? Explain. 223) _____
- 224) Juan and Pete are hired at the same salary. Juan receives a 10% raise followed by an 8% raise a year later. Pete receives an 8% raise followed by a 10% raise a year later. After all the raises, whose salary is higher? Explain. 224) _____
- 225) Ben drove his car 750 kilometers in 8 hours while he was on vacation in Italy. He was trying to estimate how far he could drive in 6 hours the next day so he set up the following proportion: $\frac{750}{8} = \frac{6}{x}$. Explain why this proportion will not give him the correct answer. 225) _____

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

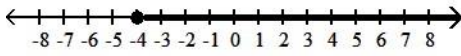
- 226) Suppose you want to solve the following problem. A teacher can grade 7 essays in 2 hours. At this rate, how many essays will she be able to grade in 5 hours? Which of the following proportions will give the correct answer? 226) _____
- (i) $\frac{7}{2} = \frac{x}{5}$
- (ii) $\frac{7}{2} = \frac{5}{x}$
- (iii) $\frac{2}{7} = \frac{x}{5}$
- (iv) $\frac{2}{7} = \frac{5}{x}$
- A) (i) and (iv) B) (iii) only C) (ii) and (iv) D) (i) only

Graph the inequality.

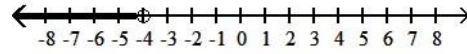
- 227) $x > -4$ 227) _____



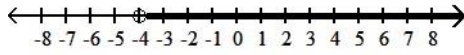
A)



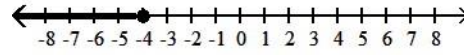
B)



C)



D)

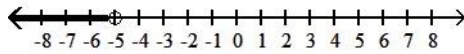


228) $x < -5$

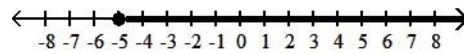


228) _____

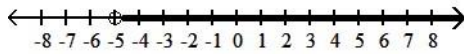
A)



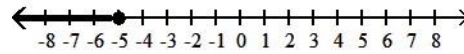
B)



C)



D)

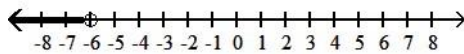


229) $x \geq -6$

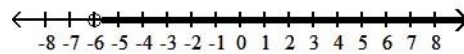


229) _____

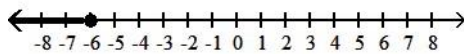
A)



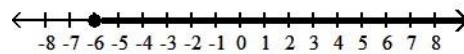
B)



C)



D)

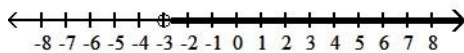


230) $x \leq -3$

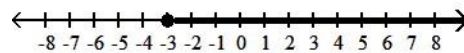


230) _____

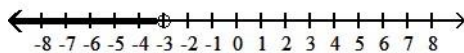
A)



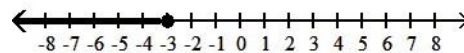
B)



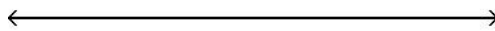
C)



D)

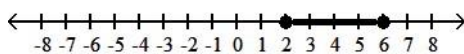


231) $2 \leq x \leq 6$

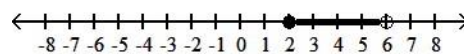


231) _____

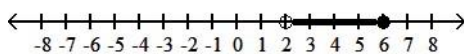
A)



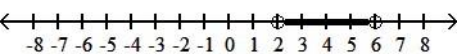
B)



C)



D)

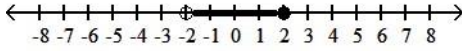


232) $-2 < x < 2$

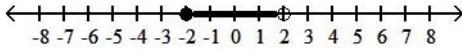


232)

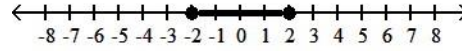
A)



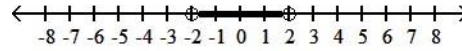
C)



B)



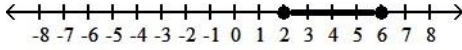
D)



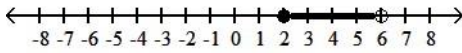
233) $2 \leq x < 6$



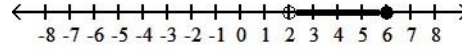
A)



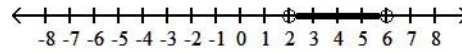
C)



B)



D)

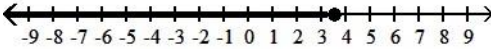


233) _____

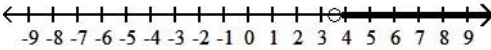
234) $\frac{7}{2}$
 $x \geq$



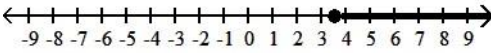
A)



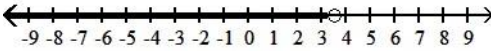
B)



C)



D)

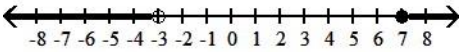


234) _____

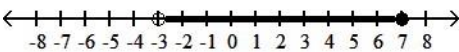
235) $x < -3$ or $x \geq 7$



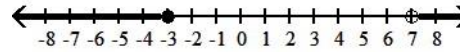
A)



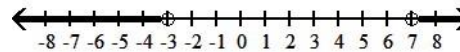
C)



B)

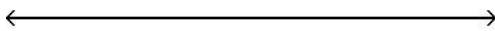


D)



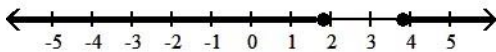
235) _____

236) $x \leq 1.8$ or $x > 3.8$

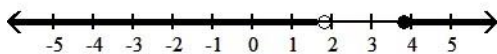


A)

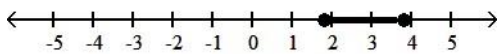
236) _____



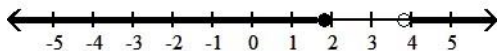
B)



C)



D)



Write the inequality in interval notation.

237) $x > 0$

A) $(0, \infty)$

B) $(-\infty, 0]$

C) $[0, \infty)$

D) $(-\infty, 0)$

237) _____

238) $x < 3$

A) $(-\infty, 3]$

B) $(-\infty, 3)$

C) $(3, \infty)$

D) $[3, \infty)$

238) _____

239) $x \geq 0$

A) $[0, \infty)$

B) $(0, \infty)$

C) $(-\infty, 0)$

D) $(-\infty, 0]$

239) _____

240) $x \leq 7$

A) $(-\infty, 7]$

B) $(7, \infty)$

C) $(-\infty, 7)$

D) $[7, \infty)$

240) _____

241) $x \geq -1.8$

A) $(-\infty, -1.8)$

B) $(-1.8, \infty)$

C) $[-1.8, \infty)$

D) $(-\infty, -1.8]$

241) _____

242) $-5 < x < 5$

A) $(-\infty, 5)$

B) $[-5, 5]$

C) $(-5, 5)$

D) $(-5, 5]$

242) _____

243) $-8 \leq x \leq 8$

A) $(-8, 8]$

B) $[-8, 8]$

C) $(-\infty, 8)$

D) $(-8, 8)$

243) _____

244) $-2.1 < x \leq 3.7$

A) $(-2.1, 3.7]$

C) $(-\infty, -2.1] \cup (3.7, \infty)$

B) $(-\infty, -2.1) \cup [3.7, \infty)$

D) $[-2.1, 3.7)$

244) _____

245) $x > 13$ or $x \leq 5$

A) $(-\infty, 5] \cup (13, \infty)$

B) $(-\infty, 5) \cup [13, \infty)$

C) $[5, 13)$

D) $(-\infty, 13) \cup [5, \infty)$

245) _____

246) $x < \frac{1}{8}$ or $x > \frac{7}{2}$

A) $\left(-\infty, \frac{1}{8}\right) \cup \left(\frac{7}{2}, \infty\right)$

B) $\left[\frac{1}{8}, \frac{7}{2}\right]$

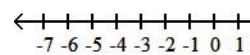
C) $\left(-\infty, \frac{7}{2}\right) \cup \left(\frac{1}{8}, \infty\right)$

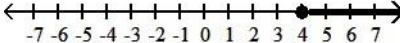
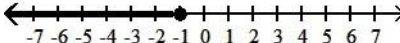
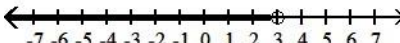
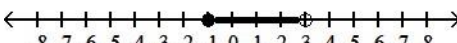
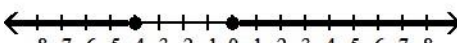
D) $\left[\frac{1}{8}, \frac{7}{2}\right)$

246) _____

Write an inequality associated with the given graph.

247)

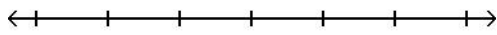


- 247) _____
 A) $x \leq 3$ B) $x \geq 3$ C) $x > 3$ D) $x < 3$
- 248) _____

 A) $x > 4$ B) $x \geq 4$ C) $x \leq 4$ D) $x < 4$
- 249) _____

 A) $x < -1$ B) $x > -1$ C) $x \geq -1$ D) $x \leq -1$
- 250) _____

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

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

 A) $-4 \leq x \leq 0$ B) $x < -4$ or $x > 0$ C) $x \leq -4$ or $x \geq 0$ D) $-4 < x < 0$
- Write an inequality associated with the given interval notation.**
- 253) $(-8, 2)$ _____
 A) $-8 < x < 2$ B) $-8 \leq x \leq 2$ C) $x > -8$ or $x < 2$ D) $x < -8$ or $x > 2$
- 254) $[-5, 2]$ _____
 A) $x \leq -5$ or $x \geq 2$ B) $-5 < x < 2$ C) $x \geq -5$ or $x \leq 2$ D) $-5 \leq x \leq 2$
- 255) $(-\infty, 12)$ _____
 A) $x < 12$ B) $x \leq 12$ C) $x > 12$ D) $x \geq 12$
- 256) $(-\infty, -12]$ _____
 A) $x \leq -12$ B) $x < -12$ C) $x > -12$ D) $x \geq -12$
- 257) $(-16, \infty)$ _____
 A) $x > -16$ B) $x \leq -16$ C) $x \geq -16$ D) $x < -16$
- 258) $[16, \infty)$ _____
 A) $x < 16$ B) $x \leq 16$ C) $x \geq 16$ D) $x > 16$
- 259) $(-\infty, -8) \cup (7, \infty)$ _____
 A) $-8 \leq x \leq 7$ B) $-8 < x < 7$ C) $x > -8$ or $x < 7$ D) $x < -8$ or $x > 7$
- 260) $(-\infty, -9] \cup [4, \infty)$ _____
 A) $x \geq -9$ or $x \leq 4$ B) $-9 \leq x \leq 4$ C) $x \leq -9$ or $x \geq 4$ D) $-9 < x < 4$

Solve. Graph the solution on a number line, and express it in interval notation.

261) $x - 1 < 4$

261) _____



A) $x > 5$, $(5, \infty)$



B) $x \leq 5$, $(-\infty, 5]$



C) $x \geq 5$, $[5, \infty)$

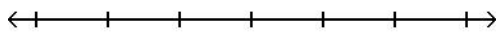


D) $x < 5$, $(-\infty, 5)$



262) $x + 1 < 7$

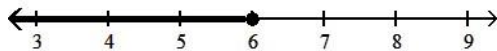
262) _____



A) $x > 6$, $(6, \infty)$



B) $x \leq 6$, $(-\infty, 6]$



C) $x \geq 6$, $[6, \infty)$

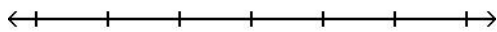


D) $x < 6$, $(-\infty, 6)$

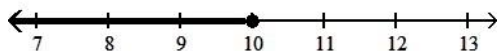


263) $7x + 4 > 6x + 6$

263) _____



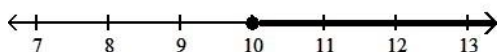
A) $x \leq 10$, $(-\infty, 10]$



B) $x > 2$, $(2, \infty)$



C) $x \geq 10$, $[10, \infty)$

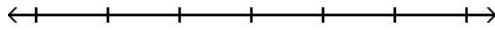


D) $x < 2$, $(-\infty, 2)$

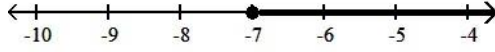


264) $7x + 1 \geq 6x - 6$

264) _____



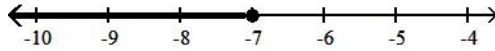
A) $x \geq -7, [-7, \infty)$



B) $x > 7, (7, \infty)$



C) $x \leq -7, (-\infty, -7]$

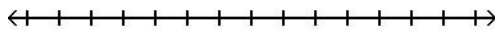


D) $x < 7, (-\infty, 7)$

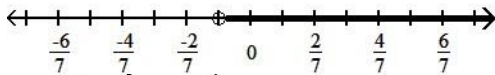


265) $x - \frac{2}{21} > -\frac{8}{21}$

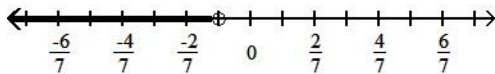
265) _____



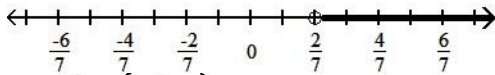
A) $x > -\frac{1}{7}, \left(-\frac{1}{7}, \infty\right)$



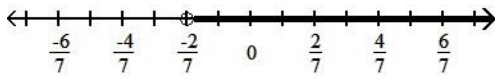
B) $x < -\frac{1}{7}, \left(-\infty, -\frac{1}{7}\right)$



C) $x > \frac{2}{7}, \left(\frac{2}{7}, \infty\right)$

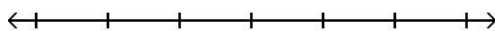


D) $x > -\frac{2}{7}, \left(-\frac{2}{7}, \infty\right)$

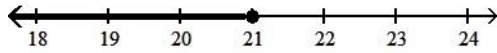


266) $\frac{x}{7} \geq 3$

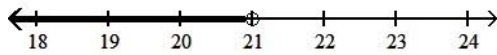
266) _____



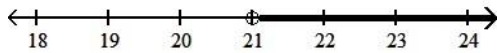
A) $x \leq 21, (-\infty, 21]$



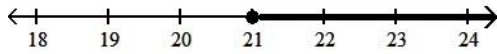
B) $x < 21, (-\infty, 21)$



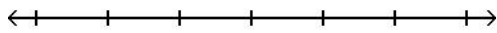
C) $x > 21, (21, \infty)$



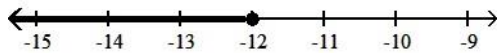
D) $x \geq 21, [21, \infty)$



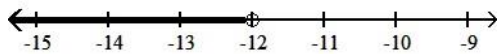
267) $\frac{x}{-4} < 3$



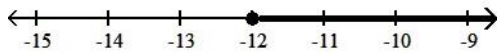
A) $x \leq -12, (-\infty, -12]$



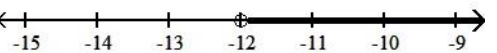
B) $x < -12, (-\infty, -12)$



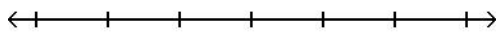
C) $x \geq -12, [-12, \infty)$



D) $x > -12, (-12, \infty)$



268) $\frac{x}{-9} \leq -3$



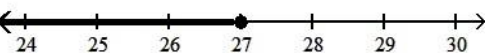
A) $x > 27, (27, \infty)$



B) $x \geq 27, [27, \infty)$



C) $x \leq 27, (-\infty, 27]$



D) $x < 27, (-\infty, 27)$

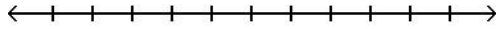


267) _____

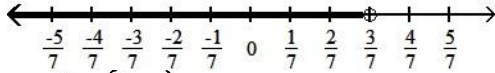
268) _____

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

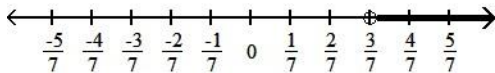
269) _____



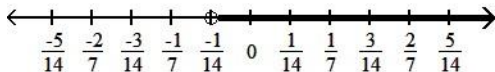
A) $x < \frac{3}{7}, \left(-\infty, \frac{3}{7}\right)$



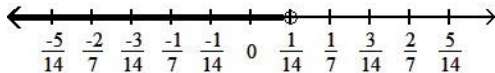
B) $x > \frac{3}{7}, \left(\frac{3}{7}, \infty\right)$



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



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

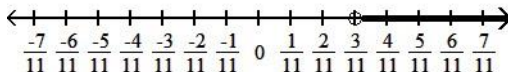


270) $\frac{2}{11} \geq \frac{8}{11}$
 $x + \frac{2}{11} \geq \frac{8}{11}$

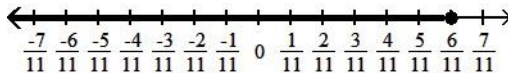
270) _____



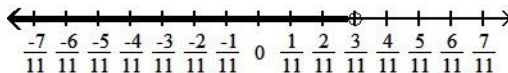
A) $x > \frac{3}{11}, \left(\frac{3}{11}, \infty\right)$



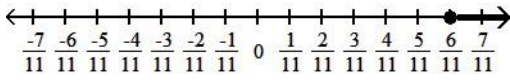
B) $x \leq \frac{6}{11}, \left(-\infty, \frac{6}{11}\right]$



C) $x < \frac{3}{11}, \left(-\infty, \frac{3}{11}\right)$

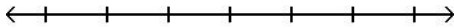


D) $x \geq \frac{6}{11}, \left[\frac{6}{11}, \infty\right)$



271) $-5x + 1 > -6x - 5$

271) _____



A) $x < -6, (-\infty, -6)$

B) $x > -6, (-6, \infty)$



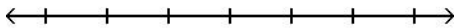
C) $x < -4, (-\infty, -4)$

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



272) $5x + 9 \leq 4x + 16$

272) _____



A) $x \leq 7, (-\infty, 7]$

B) $x < 5, (-\infty, 5)$



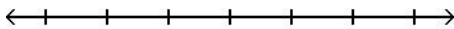
C) $x \geq 7, [7, \infty)$

D) $x > 5, (5, \infty)$



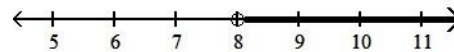
273) $8x + 12 \geq 7x + 8$

273) _____



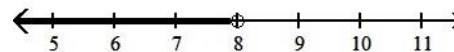
A) $x \geq -4, [-4, \infty)$

B) $x > 8, (8, \infty)$



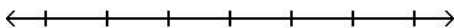
C) $x \leq -4, (-\infty, -4]$

D) $x < 8, (-\infty, 8)$



274) $-12 - 5x - 2 \geq -6x - 13$

274) _____



A) $x \leq 1, (-\infty, 1]$

B) $x < -5, (-\infty, -5)$

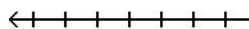


C) $x > -5, (-5, \infty)$

D) $x \geq 1, [1, \infty)$

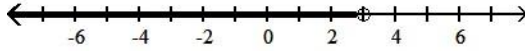


275) $0.6x + 16 + x > 2x + 13 - 0.5x$

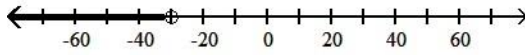


275)

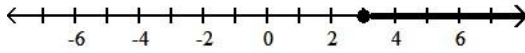
A) $x < 3, (-\infty, 3)$



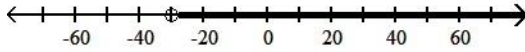
B) $x < -30, (-\infty, -30)$



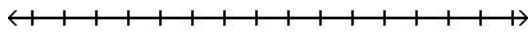
C) $x \geq 3, [3, \infty)$



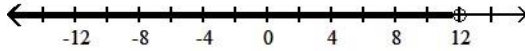
D) $x > -30, (-30, \infty)$



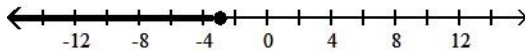
276) $\frac{x}{2} + 5 \leq 10$



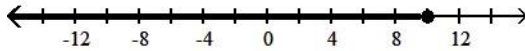
A) $x < 12, (-\infty, 12)$



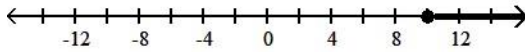
B) $x \leq -3, (-\infty, -3]$



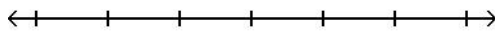
C) $x \leq 10, (-\infty, 10]$



D) $x \geq 10, [10, \infty)$



277) $21x + 24 > 3(6x + 10)$



A) $x \geq 2, [2, \infty)$



B) $x \leq 2, (-\infty, 2]$



C) $x > 2, (2, \infty)$



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

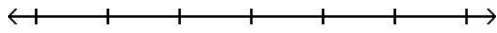


276) _____

277) _____

278) $-4(6x + 13) < -28x - 36$

278) _____



A) $x \geq 4, [4, \infty)$



B) $x \leq 4, (-\infty, 4]$



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

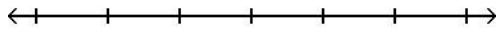


D) $x > 4, (4, \infty)$

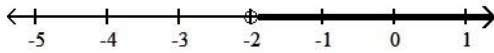


279) $12x - 28 \leq 4(2x - 9)$

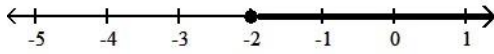
279) _____



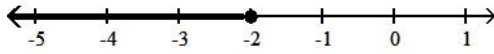
A) $x > -2, (-2, \infty)$



B) $x \geq -2, [-2, \infty)$



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

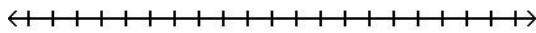


D) $x < -2, (-\infty, -2)$

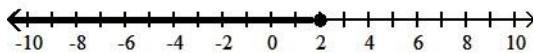


280) $\frac{2}{3}(2x - 1) < 2$

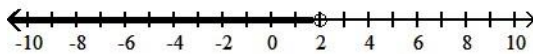
280) _____



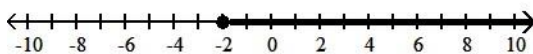
A) $x \leq 2, (-\infty, 2]$



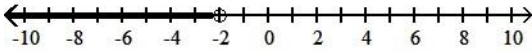
B) $x < 2, (-\infty, 2)$



C) $x \geq -2, [-2, \infty)$

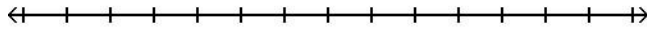


D) $x < -2, (-\infty, -2)$

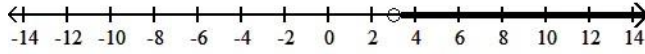


281) $3x < 9$ or $x + 3 \geq 10$

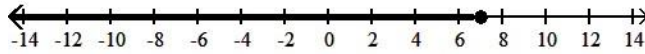
281) _____



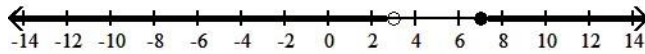
A) $x > 3, (3, \infty)$



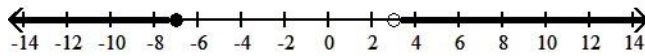
B) $x \leq 7, (-\infty, 7]$



C) $x < 3$ or $x \geq 7, (-\infty, 3) \cup [7, \infty)$

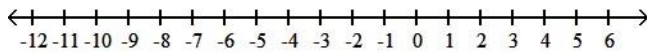


D) $x \leq -7$ or $x > 3, (-\infty, -7] \cup (3, \infty)$

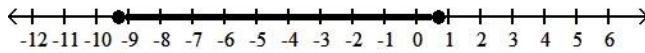


282) $3x + 13 \leq -15$ or $3x + 13 \geq 15$

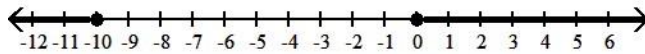
282) _____



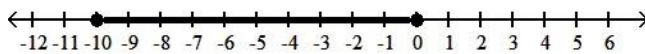
A) $\frac{28}{3} \leq x \leq \frac{2}{3}, \left[-\frac{28}{3}, \frac{2}{3}\right]$



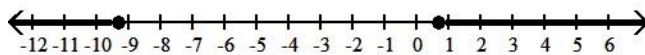
B) $x \leq -10$ or $x \geq 0, (-\infty, -10] \cup [0, \infty)$



C) $-10 \leq x \leq 0, [-10, 0]$

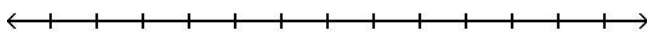


D) $x \leq -\frac{28}{3}$ or $x \geq \frac{2}{3}, \left(-\infty, -\frac{28}{3}\right] \cup \left[\frac{2}{3}, \infty\right)$

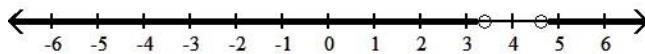


283) $3x - 12 < -1.8$ or $3x - 12 > 1.8$

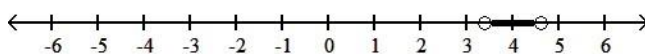
283) _____



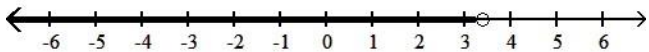
A) $x < 3.4$ or $x > 4.6, (-\infty, 3.4) \cup (4.6, \infty)$



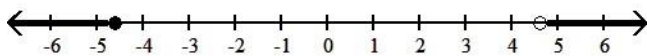
B) $3.4 < x < 4.6, (3.4, 4.6)$



C) $(-\infty, 3.4)$

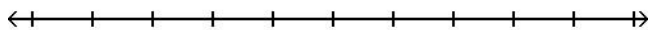


D) $x \leq -4.6$ or $x > 4.6$, $(-\infty, -4.6] \cup (4.6, \infty)$

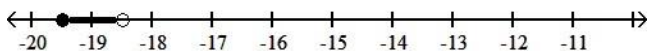


284) $x + 19 \leq -\frac{1}{2}$ or $x + 19 > \frac{1}{2}$

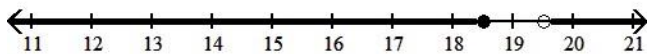
284) _____



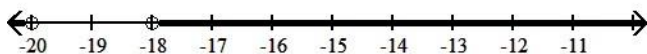
A) $-\frac{39}{2} \leq x < -\frac{37}{2}$, $\left[-\frac{39}{2}, -\frac{37}{2}\right)$



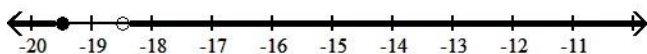
B) $x \leq \frac{37}{2}$ or $x > \frac{39}{2}$, $\left(-\infty, \frac{37}{2}\right] \cup \left(\frac{39}{2}, \infty\right)$



C) $x < -20$ or $x > -18$, $(-\infty, -20) \cup (-18, \infty)$

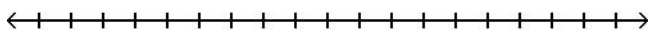


D) $x \leq -\frac{39}{2}$ or $x > -\frac{37}{2}$, $\left(-\infty, -\frac{39}{2}\right] \cup \left(-\frac{37}{2}, \infty\right)$

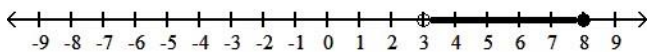


285) $15 < 5x \leq 40$

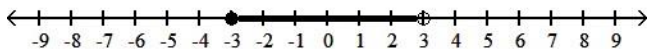
285) _____



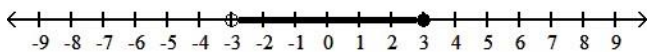
A) $3 < x \leq 8$, $(3, 8]$



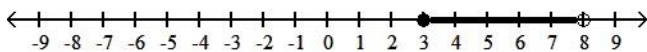
B) $-3 \leq x < 3$, $[-3, 3)$



C) $-3 < x \leq 3$, $(-3, 3]$

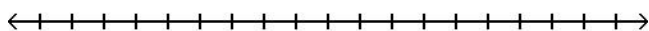


D) $3 \leq x < 8$, $[3, 8)$

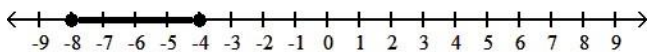


286) $6 \leq 2x - 2 \leq 14$

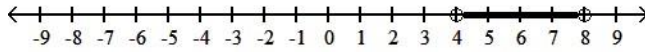
286) _____



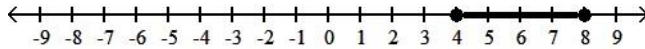
A) $-8 \leq x \leq -4$, $[-8, -4]$



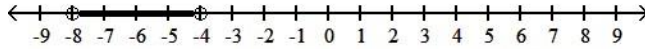
B) $4 < x < 8$, $(4, 8)$



C) $4 \leq x \leq 8$, $[4, 8]$

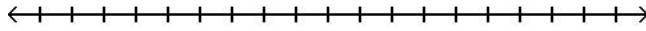


D) $-8 < x < -4$, $(-8, -4)$

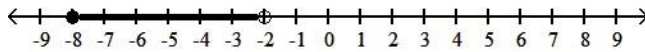


287) $-35 \leq -5x + 5 < -5$

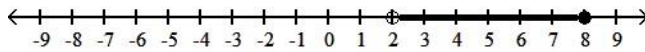
287) _____



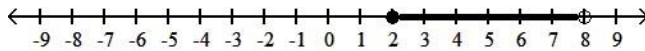
A) $-8 \leq x < -2$, $[-8, -2)$



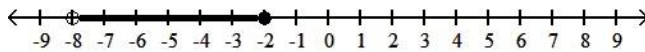
B) $2 < x \leq 8$, $(2, 8]$



C) $2 \leq x < 8$, $[2, 8)$

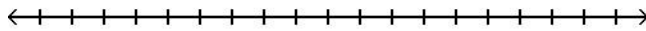


D) $-8 < x \leq -2$, $(-8, -2]$

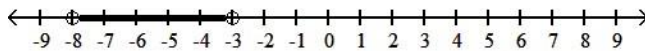


288) $-13 \leq -2x + 3 \leq -3$

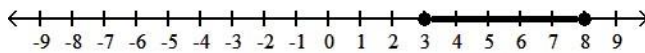
288) _____



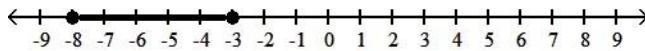
A) $-8 < x < -3$, $(-8, -3)$



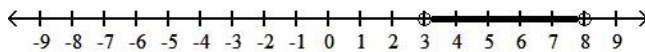
B) $3 \leq x \leq 8$, $[3, 8]$



C) $-8 \leq x \leq -3$, $[-8, -3]$

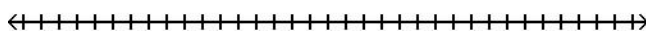


D) $3 < x < 8$, $(3, 8)$

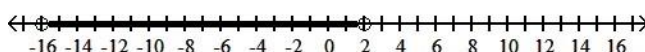


289) $-3 \leq 5 + \frac{1}{2}x \leq 6$

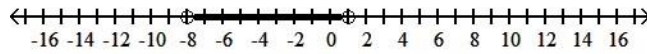
289) _____



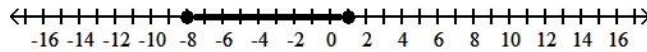
A) $-16 < x < 2$, $(-16, 2)$



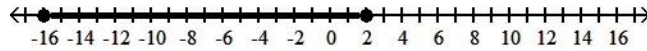
B) $-8 < x < 1$, $(-8, 1)$



C) $-8 \leq x \leq 1$, $[-8, 1]$



D) $-16 \leq x \leq 2$, $[-16, 2]$



Solve the problem.

290) In order for a chemical reaction to take place, the Fahrenheit temperature of the reagents must be 290) _____

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

at least 170.71°F . Find the Celsius temperatures at which the reaction may occur.

Round your answer to the nearest hundredth of a degree.

- A) $C < 339.28^{\circ}$ B) $C \leq 77.06^{\circ}$ C) $C \geq 77.06^{\circ}$ D) $C \geq 339.28^{\circ}$

291) In order for a chemical reaction to remain stable, its Celsius temperature must be no more than 291) _____

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

89.02°C . Find the Fahrenheit temperatures at which the reaction will remain stable.

Round your answer to the nearest hundredth of a degree.

- A) $F \leq 31.68^{\circ}$ B) $F \geq 31.68^{\circ}$ C) $F \geq 192.24^{\circ}$ D) $F \leq 192.24^{\circ}$

292) A salesperson has two job offers. Company A offers a weekly salary of \$720 plus commission of 292) _____

16% of sales. Company B offers a weekly salary of \$1440 plus commission of 8% of sales. What is the amount of sales above which Company A's offer is the better of the two?

- A) \$9100 B) \$4500 C) \$18,000 D) \$9000

293) Company A rents copiers for a monthly charge of \$180 plus 12 cents per copy. Company B rents 293) _____

copiers for a monthly charge of \$360 plus 6 cents per copy. What is the number of copies above which Company A's charges are the higher of the two?

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

294) A car rental company has two rental rates. Rate 1 is \$40 per day plus \$0.16 per mile. Rate 2 is \$80 294) _____

per day plus \$0.08 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 49,000 miles B) More than 3500 miles
C) More than 12,250 miles D) More than 25,200 miles

295) Jim has gotten scores of 70 and 71 on his first two tests. What score must he get on his third test 295) _____

to keep an average of 80 or greater?

- A) At least 99 B) At least 73.7 C) At least 70.5 D) At least 98

296) A bag of marbles has twice as many blue marbles as green marbles, and the bag has at least 21 296) _____

marbles in it. At least how many green marbles does it have?

- A) At least 11 green marbles B) At least 14 green marbles
C) At least 7 green marbles D) At least 8 green marbles

297) Jon has 633 points in his math class. He must have 70% of the 1100 points possible by the end of 297) _____

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) 467 points

B) 770 points

C) 137 points

D) 443 points

298) DG's Plumbing and Heating charges \$50 plus \$75 per hour for emergency service. Bill remembers being billed just over \$250 for an emergency call. How long to the nearest hour was the plumber at Bill's house? 298) _____

A) 4 hours

B) 16 hours

C) 14 hours

D) 3 hours

299) _____

A 6-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 $38\frac{2}{3}$ lb?

A) More than 50 weeks

B) More than 49 weeks

C) More than 67 weeks

D) More than 1 week(s)

Answer the question or solve the problem.

300) True or False? If $x < 4$ then $-3x < -12$. 300) _____

A) True

B) False

301) True or False? If $x > 3$ then $3x > 9$. 301) _____

A) True

B) False

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

302) Under what conditions must the inequality symbol be reversed when solving an inequality? 302) _____

303) In solving the inequality $7x \leq -42$, would you have to reverse the inequality symbol? Explain why. 303) _____

304) The three-part inequality $a < x \leq b$ means "a is less than x and x is less than or equal to b". Which of these inequalities has no solution? 304) _____
(a) $-5 < x \leq -11$
(b) $-8 < x \leq -7$
(c) $0 < x \leq 4$
(d) $-2 < x \leq 6$

305) If $a < b$, is it always true that $\frac{1}{a} > \frac{1}{b}$? Explain. 305) _____

306) If $b < 0$, is it true that $b^2 > b$? Explain. 306) _____

307) If $a \leq b$, is it always true that $a - 4 \leq b - 4$? Explain. 307) _____

308) If $a \leq b$, is it always true that $-4a \leq -4b$? Explain. 308) _____

309) If $a \leq b$, is it always true that $a^2 \leq b^2$? Explain. 309) _____

- 1) A
- 2) A
- 3) B
- 4) A
- 5) B
- 6) B
- 7) A
- 8) B
- 9) A
- 10) A
- 11) A
- 12) B
- 13) A
- 14) A
- 15) A
- 16) B
- 17) A
- 18) C
- 19) C
- 20) B
- 21) C
- 22) D
- 23) C
- 24) D
- 25) A
- 26) C
- 27) D
- 28) D
- 29) A
- 30) A
- 31) D
- 32) C
- 33) C
- 34) B
- 35) C
- 36) A
- 37) A
- 38) C
- 39) D
- 40) C
- 41) B
- 42) Answers will vary.
- 43) Answers will vary.
- 44)
Answers will vary. One possibility is: $\frac{5}{13}x = -6.$
- 45)
Answers will vary. One possibility is $\frac{1}{100}x = 0.136$
- 46) Yes, the friend did make a mistake. She should have added 23 to both sides of the equation. The correct solution should be $x = 72.$
- 47)

Yes, the friend did make a mistake. He should have multiplied by $\frac{6}{5}$ on both sides of the equation. The correct solution should be $x = \frac{36}{5}$.

48) The first step is to add $(-b)$ to both sides of the equation. The solution will be $x = a + (-b)$.

49) The first step is to multiply both sides of the equation by $\frac{b}{a}$. The solution will be $x = \frac{cb}{da}$.

50) Answers will vary. A possible answer is $5x = 2$.

51) Answers will vary. A possible answer is $x + 1 = -10$.

52) A

53) D

54) B

55) B

56) C

57) C

58) A

59) C

60) D

61) A

62) B

63) A

64) D

65) B

66) A

67) D

68) C

69) B

70) B

71) B

72) D

73) D

74) C

75) C

76) A

77) B

78) B

79) D

80) A

81) C

82) A

83) A

84) B

85) B

86) D

87) C

88) D

89) B

90) D

91) A

92) D

93) B

- 94) B
- 95) C
- 96) A
- 97) D
- 98) C
- 99) D
- 100) B
- 101) A
- 102) D
- 103) C
- 104) C
- 105) A
- 106) C
- 107) C
- 108) D
- 109) A
- 110) B
- 111) D
- 112) B
- 113) C
- 114) D
- 115) A

116) In line 5, we should have divided both sides of the equation and not subtracted from both sides of the equation.

117) No. The solution is all real numbers.

118) Answers will vary. One possible answer:

$$7x - 7 + 3x = -5x$$

$$7x + 3x + 5x = 7$$

$$15x = 7$$

$$x = \frac{7}{15}$$

119) 21

120) 44

121) Answers will vary. A possible answer is $2(x - 9) = 3(x + 1) - x$.

122) Answers will vary. A possible answer is $x + 3 = 9$.

- 123) A
- 124) B
- 125) A
- 126) B
- 127) A
- 128) B
- 129) C
- 130) D
- 131) D
- 132) B
- 133) A
- 134) A
- 135) D
- 136) C
- 137) D
- 138) D
- 139) A
- 140) C

141) B
142) B
143) B
144) D
145) B
146) A
147) C
148) A
149) D
150) B
151) C
152) C
153) A
154) B
155) A
156) C
157) B
158) B
159) A
160) A
161) C
162) B
163) B
164) A
165) B
166) D
167) D
168) A
169) B
170) A
171) A
172) B
173) A
174) D
175) B
176) D
177) C
178) C
179) C
180) B
181) C
182) C
183) A
184) C
185) D
186) B
187) B
188) D
189) A
190) D
191) A
192) C

- 193) C
- 194) B
- 195) A
- 196) D
- 197) C
- 198) D
- 199) A
- 200) D
- 201) D
- 202) B
- 203) B
- 204) C
- 205) A
- 206) C
- 207) A
- 208) A
- 209) A
- 210) A
- 211) D
- 212) A
- 213) A
- 214) B
- 215) C
- 216) D
- 217) D
- 218) A
- 219) B
- 220) C

221) This equation will not give her the correct answer. The correct equation is $15\% \times x = 86$. Since there was a 15% increase from the original, unknown price (x), 15% should be multiplied by x, not by the dollar amount of the increase. (Explanations will vary.)

222) The item has not been restored to its original price. Its price is now lower than the original price. The amount of the increase was less than the amount of the discount since 20% of a smaller number (i.e., the sale price) is less than 20% of a larger number (i.e., the original price). For example, if the original price was \$100, the sales price would be \$80, and the final price would be \$96. (Explanations will vary.)

223) It is better for Roberto to take his 20% discount first, since 20% of a larger number (x) is greater than 20% of a smaller number (x - 15). For example, if the original price of the jacket was \$100, taking the 20% discount first would reduce the price to \$80, and taking \$15 off this would make the price \$65. However, taking the \$15 off first would reduce the price to \$85, and taking 20% off this would make the price \$68. (Explanations will vary.)

224) Neither. Juan's and Pete's final salaries are equal since $(y \times 110\%) \times 108\% = (y \times 108\%) \times 110\%$. For example, if the original salary of each is \$100,000 Juan's first raise will give him a salary of \$110,000 while his second raise will increase his salary to \$118,800 Pete's first raise will give him a salary of \$108,000 while his second raise will increase his salary to \$118,800 (Explanations will vary.)

225) This proportion will not give him the correct answer because it is set up incorrectly. The numerators and denominators do not correspond. The correct proportion is $\frac{750}{8} = \frac{x}{6}$.

- 226) A
- 227) C
- 228) A
- 229) D
- 230) D

231) A
232) D
233) C
234) C
235) A
236) A
237) A
238) B
239) A
240) A
241) C
242) C
243) B
244) A
245) A
246) A
247) C
248) B
249) D
250) B
251) A
252) C
253) A
254) D
255) A
256) A
257) A
258) C
259) D
260) C
261) D
262) D
263) B
264) A
265) D
266) D
267) D
268) C
269) C
270) D
271) B
272) A
273) A
274) D
275) D
276) C
277) C
278) C
279) C
280) B
281) C
282) D

- 283) A
- 284) D
- 285) A
- 286) C
- 287) B
- 288) B
- 289) D
- 290) C
- 291) D
- 292) D
- 293) C
- 294) B
- 295) A
- 296) C
- 297) C
- 298) D
- 299) B
- 300) B
- 301) A
- 302) When multiplying or dividing by a negative number.
- 303) No. No dividing by a negative number is involved.
- 304) Choice (a) is not.
- 305) No. If a or b is zero, then the second statement is undefined. Both a and b must also have the same sign.
- 306) Yes, since $b^2 > 0 > b$.
- 307) Yes, since adding the same number to both sides does not change the inequality.
- 308) No, multiplying an inequality by a negative number reverses the inequality symbol.
- 309) No, not if a is a negative number.