

- | | | | | |
|-------------------------------------|------------------|----------------------|----------------------|-----------|
| A) $-4y$ | B) $-5y + y$ | C) $-6y$ | D) $-5y$ | |
| 15) $3z - 12z - z$ | | | | 15) _____ |
| A) $-9z$ | B) $-9z - z$ | C) $-8z$ | D) $-10z$ | |
| 16) $5a - 2a + 3$ | | | | 16) _____ |
| A) $6a$ | B) $3a + 3$ | C) $-3a + 3$ | D) $7a + 3$ | |
| 17) $12x - x - 4x - x$ | | | | 17) _____ |
| A) $6x$ | B) $x^2 + 8x$ | C) $8x$ | D) $-x^2 + 8x$ | |
| 18) $8x - 4 + 2x + 1$ | | | | 18) _____ |
| A) 7 | B) $7x$ | C) $6x - 3$ | D) $10x - 3$ | |
| 19) $8a - 3a - a - 15$ | | | | 19) _____ |
| A) $5a - 16$ | B) $5a - a - 15$ | C) $4a - 15$ | D) $5a - 15$ | |
| 20) $6y + 2 - 4y + 7$ | | | | 20) _____ |
| A) $10y + 9$ | B) $2y + 9$ | C) $2y - 5$ | D) $11y$ | |
| 21) $11x - 8 + 4x + x + 7$ | | | | 21) _____ |
| A) $14x - 1$ | B) $16x - 1$ | C) $15x - 1$ | D) $15x + 1$ | |
| 22) $-6m + 6 - 3 + 2 + m - 5$ | | | | 22) _____ |
| A) $-7m$ | B) $-5m$ | C) $-5m - 1$ | D) $-7m + 1$ | |
| 23) $0.4c + 2 + 5c + 2.7$ | | | | 23) _____ |
| A) $2c + 5.4$ | | B) 10.1 | | |
| C) $0.4c + 5c + 2 + 2.7$ | | D) $5.4c + 4.7$ | | |
| 24) $5.5w - 1.4 - 3.1w + 6 + 2.8w$ | | | | 24) _____ |
| A) $5.2w + 7.4$ | B) $5.2w - 4.6$ | C) $11.4w + 4.6$ | D) $5.2w + 4.6$ | |
| 25) $9x^2 + 5x + 2 + 3x + 8 + 5x^2$ | | | | 25) _____ |
| A) $14x^4 + 8x^2 + 10$ | B) $32x^3$ | C) $14x^2 + 8x + 10$ | D) $7x^2 + 12x + 13$ | |

Simplify the expression. First use the distributive property to remove any parentheses.

- | | | | | |
|------------------|----------------|---------------|----------------|-----------|
| 26) $9(y + 6)$ | | | | 26) _____ |
| A) $y + 54$ | B) $9y + 6$ | C) $9y + 54$ | D) $9y + 15$ | |
| 27) $5(x - 2)$ | | | | 27) _____ |
| A) $5x - 10$ | B) $5x - 2$ | C) $5x - 7$ | D) $5x + 10$ | |
| 28) $-6(r + 8)$ | | | | 28) _____ |
| A) $r - 48$ | B) $-6r - 48$ | C) $-6r - 8$ | D) $-6r + 48$ | |
| 29) $-10(z - 3)$ | | | | 29) _____ |
| A) $-10z + 3$ | B) $-10z + 30$ | C) $10z + 30$ | D) $-10z - 30$ | |
| 30) $7(4d + 8)$ | | | | 30) _____ |

- | | | | | | |
|-----|---|------------------------|------------------------|-------------------------|-----------|
| | A) $11d + 15$ | B) $84d$ | C) $28d + 8$ | D) $28d + 56$ | |
| 31) | $8(2n - 4)$
A) $16n - 32$ | B) $10n - 12$ | C) $16n + 32$ | D) $16n - 4$ | 31) _____ |
| 32) | $-6(8x + 5)$
A) $2x - 1$ | B) $-78x$ | C) $-48x - 30$ | D) $-48x + 5$ | 32) _____ |
| 33) | $-2(7y - 6)$
A) $-14y + 12$ | B) $-14y - 12$ | C) $-14y - 6$ | D) $5y - 4$ | 33) _____ |
| 34) | $-3(10r + 5) + 10(2r + 8)$
A) $-10r + 65$ | B) $-45r$ | C) $-10r + 5$ | D) $7r + 2$ | 34) _____ |
| 35) | $4(3x + 6 + y)$
A) $12x + 6 + y$ | B) $12x + 24 + 4y$ | C) $12x + 24 + y$ | D) $12x + 6 + 4y$ | 35) _____ |
| 36) | $9(6x + 8y + 3)$
A) $54x + 8y + 3$ | B) $54x + 72y + 27$ | C) $54x + 72y + 3$ | D) $54x + 8y + 27$ | 36) _____ |
| 37) | $-(-7m + 6n - 4)$
A) $-7m + 6n - 4$ | B) $7m - 6n - 4$ | C) $-7m + 6n + 4$ | D) $7m - 6n + 4$ | 37) _____ |
| 38) | $-(5y - 2z + 8)$
A) $-5y - 2z + 8$ | B) $-5y + 2z + 8$ | C) $-5y + 2z - 8$ | D) $-5y - 2z - 8$ | 38) _____ |
| 39) | $(12z + 7) - (5z - 4)$
A) $17z + 11$ | B) $7z + 3$ | C) $7z - 11$ | D) $7z + 11$ | 39) _____ |
| 40) | $10(y + 4) - 3$
A) $10y + 1$ | B) $10y + 37$ | C) $14y - 3$ | D) $10y + 10$ | 40) _____ |
| 41) | $5x + 4(x + 4)$
A) $20x + 8$ | B) $6x + 16$ | C) $9x - 16$ | D) $9x + 16$ | 41) _____ |
| 42) | $-4(2x - 9) - 4x + 6$
A) $-12x + 42$ | B) $-12x - 30$ | C) $12x + 42$ | D) $4x + 42$ | 42) _____ |
| 43) | $6(x - 3) + 8x + 8$
A) $14x + 26$ | B) $14x - 26$ | C) $2x - 10$ | D) $14x - 10$ | 43) _____ |
| 44) | $6m + 4n - 4m + 10(m - 7n)$
A) $-8m + 74n$ | B) $12m - 66n$ | C) $20m + 74n$ | D) $12m - 3n$ | 44) _____ |
| 45) | $\frac{2}{7} - \frac{1}{14}z$
A) $\frac{5}{14}z - 4$ | B) $\frac{5}{14}z + 4$ | C) $\frac{5}{14}z + 4$ | D) $\frac{3}{14}z + 14$ | 45) _____ |
| 46) | $\frac{1}{2}(6x + 1) - \frac{3}{4}(4x - 8)$ | | | | 46) _____ |

A) 13

B) - 11

C) $\frac{13}{2}$

D) $\frac{11}{2}$

47) $-7.7(3r + 2) + 5.7(5r + 9)$

A) $5.4r + 35.9$

B) $5.4r + 2$

C) $-38.5r$

D) $-4.7r - 5.7$

47) _____

Write the following as an algebraic expression. Simplify if possible.

48) Add $6x - 4$ to $4x - 14$.

A) $2x - 18$

B) $10x - 10$

C) $10x + 18$

D) $10x - 18$

48) _____

49) Add $9x + 7$ to $2x - 4$.

A) $11x + 11$

B) $11x - 11$

C) $11x + 3$

D) $7x + 3$

49) _____

50) Subtract $6x + 4$ from $3x - 3$.

A) $3x + 7$

B) $9x + 1$

C) $-3x - 1$

D) $-3x - 7$

50) _____

51) Subtract $4x - 8$ from $6x + 7$.

A) $2x - 15$

B) $2x + 15$

C) $10x - 1$

D) $-2x - 15$

51) _____

Write the following phrase as an algebraic expression and simplify if possible. Let x represent the unknown number.

52) Two times a number, increased by twelve

A) $2x + 12$

B) $2x - 12$

C) $2 + 12x$

D) $2x + 24$

52) _____

53) The difference of thirteen and a number, divided by two

A) $13 - \frac{x}{2}$

B) $\frac{x - 13}{2}$

C) $\frac{x}{2} - 13$

D) $\frac{13 - x}{2}$

53) _____

54) One-half a number, minus nine, plus three times the number

A) $\frac{1}{2}x - 6$

B) $\frac{1}{2}x - 9 + 3x$

C) $\frac{7}{2}x - 9$

D) $\frac{7}{2}x - \frac{9}{2}$

54) _____

55) The sum of four times a number, 7, six times a number, and 3

A) $4x + 16$

B) $10x - 4$

C) $10x + 10$

D) $10x + 46$

55) _____

Write the algebraic expression described.

56) To convert from meters to centimeters, we multiply by 100. For example, the number of centimeters in 3 meters is $100 \cdot 3 = 300$. If one piece of string has a length of $x - 3$ meters, and another piece of string has a length of $7x + 6$ centimeters, express their total length in centimeters as an algebraic expression.

A) $(107x - 294)$ cm

B) $(8x + 3)$ cm

C) $(701x + 597)$ cm

D) $(800x + 300)$ cm

56) _____

57) The value of 8 dimes is $10 \cdot 8 = 80$ cents. Likewise, the value of x dimes is $10x$. If George finds $2x - 2$ nickels, $5x$ dimes, and x quarters in his change jar, express the total value of change in cents as an algebraic expression.

A) $(85x - 2)$ cents

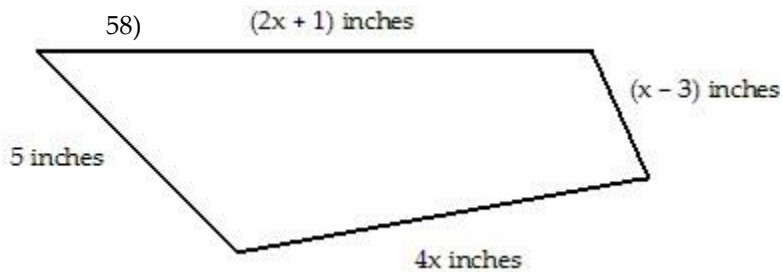
B) $(85x + 10)$ cents

C) $(85x - 10)$ cents

D) $(60x - 10)$ cents

57) _____

58) Given the following quadrilateral, express the perimeter, or total distance around the figure, as an algebraic expression containing the variable x .



- A) $(6x + 9)$ in. B) $(6x + 3)$ in. C) $(7x + 3)$ in. D) $(7x + 9)$ in.

Solve the equation.

59) $x - 4 = 15$ 59) _____
 A) -11 B) 11 C) -19 D) 19

60) $18 = r + 3$ 60) _____
 A) 15 B) -21 C) 21 D) -15

61) $t - 1 = 18$ 61) _____
 A) -19 B) 19 C) 17 D) -17

62) $\frac{1}{4} + f = 5$ 62) _____
 A) 19 B) 1 C) $\frac{21}{4}$ D) $\frac{19}{4}$

63) $12 + 6y = 7y$ 63) _____
 A) -12 B) 12 C) -1 D) 6

64) $5.9 + x = 20.6$ 64) _____
 A) 26 B) 26.5 C) 14.7 D) 14.2

65) $7y = 6y - 4.7$ 65) _____
 A) 7 B) 4.7 C) -17.7 D) -4.7

Solve the equation. Don't forget to first simplify each side of the equation, if possible.

66) $3(y + 5) = 4(y - 6)$ 66) _____
 A) 39 B) 9 C) -9 D) -39

67) $3(2z - 4) = 5(z + 3)$ 67) _____
 A) 27 B) -3 C) 6 D) 3

68) $-6(x - 7) - (-7x + 6) = 5$ 68) _____
 A) -18 B) -31 C) 41 D) 31

69) $10n = 3n + 9 + 6n$ 69) _____
 A) 9 B) -9 C) -90 D) 90

70) $-4k + 2 + 5k = 6 - 20$ 70) _____
 A) -28 B) -16 C) 16 D) 28

71) $-9c + 5 + 7c = -3c + 10$ 71) _____
 A) 5 B) 10 C) -5 D) -10

72) $\frac{3}{4}y + \frac{1}{3} = -\frac{1}{4}y - \frac{3}{8}$ 72) _____
 A) $\frac{6}{17}$ B) $\frac{17}{24}$ C) $\frac{1}{24}$ D) $\frac{17}{24}$

73) $8(3x + 7) = 25x$ 73) _____
 A) -7 B) 7 C) 56 D) -56

74) $3n - 2n - 2 = -2$ 74) _____
 A) 2 B) -4 C) -2 D) 0

75) $-8w - 13 + 9w = -8$ 75) _____
 A) -5 B) -21 C) 21 D) 5

76) $-22 + 15 = 8x + 3 - 7x$ 76) _____
 A) 40 B) -10 C) -40 D) 10

77) $-8.6 + 2x - 6.3 + 5x - 2.3 = 5.5 + 8x + 1.7$ 77) _____
 A) -24.4 B) 24.4 C) 10 D) -10

Solve the equation.

78) $-6x = 30$ 78) _____
 A) -5 B) 1 C) 36 D) -36

79) $-4n = -20$ 79) _____
 A) 2 B) -16 C) 16 D) 5

80) $-5x = 0$ 80) _____
 A) 5 B) 1 C) 0 D) -5

81) $-z = 4$ 81) _____
 A) -1 B) 0 C) 4 D) -4

82) $\frac{1}{7}y = -6$ 82) _____
 A) 0 B) 1 C) -1 D) -42

83) $\frac{1}{21}a = 0$ 83) _____
 A) 0 B) 1 C) 21 D) -21

84) $\frac{3}{8}k = \frac{3}{2}$ 84) _____
 A) -3 B) 4 C) -4 D) 5

85) $\frac{6}{7}s = -\frac{1}{6}$ 85) _____
 A) $\frac{36}{7}$ B) $\frac{7}{36}$ C) $\frac{7}{6}$ D) $\frac{7}{36}$

- 86) $\frac{n}{4} = 2$ 86) _____
 A) 6 B) 8 C) 5 D) 0
- 87) $\frac{v}{-2} = 10$ 87) _____
 A) 12 B) -20 C) 20 D) -12
- 88) $-35 = -7c$ 88) _____
 A) 2 B) -28 C) 28 D) 5
- 89) $\frac{x}{8} + 6 = 14$ 89) _____
 A) 16 B) 64 C) 160 D) 162
- 90) $-2x - 2x + 7 = -9x$ 90) _____
 A) $\frac{7}{5}$ B) $\frac{7}{5}$ C) $\frac{7}{13}$ D) $\frac{5}{7}$
- 91) $8r + 10 = 66$ 91) _____
 A) 48 B) 52 C) 7 D) 1
- 92) $4n - 9 = 11$ 92) _____
 A) 5 B) 11 C) 20 D) 16
- 93) $24 = -5x - 6$ 93) _____
 A) 39 B) 35 C) 1 D) -6
- 94) $\frac{1}{5} - \frac{1}{5} = -6$ 94) _____
 A) 29 B) -29 C) 31 D) -31
- 95) $\frac{1}{4} - 5 = 1$ 95) _____
 A) 16 B) -16 C) 24 D) -24
- 96) $6x - 14x = -5 - 19$ 96) _____
 A) 8 B) -8 C) 3 D) -3
- 97) $7x - x = 33 - 3$ 97) _____
 A) 5 B) 6 C) -5 D) -6
- 98) $8x - 9 + 4x + 8 = 6$ 98) _____
 A) $\frac{7}{12}$ B) $\frac{11}{12}$ C) $\frac{7}{12}$ D) $\frac{7}{4}$
- 99) $6z + 6 - 4(z + 1) = -(3z - 1)$ 99) _____
 A) $\frac{1}{5}$ B) $\frac{3}{5}$ C) $\frac{1}{2}$ D) $\frac{1}{6}$

100) $-3(2x + 2) - 1 = -5(x + 1) + 3x$ 100) _____
 A) $\frac{1}{4}$ B) 0 C) $\frac{1}{2}$ D) $\frac{3}{2}$

101) $0.7x - 0.9x - 4 = 6$ 101) _____
 A) 50 B) -50 C) 46 D) -46

102) $-6.1z + 1.1 = -12.4 - 1.6z$ 102) _____
 A) 2.5 B) 3 C) 2.2 D) -18

103) $\frac{1}{5}(x + 6) = \frac{1}{7}(x + 8)$ 103) _____
 A) -1 B) -12 C) {3} D) 1

104) $\frac{1}{7}(x + 14) + \frac{1}{9}(x + 9) = x - 4$ 104) _____
 A) $\frac{189}{65}$ B) $\frac{441}{65}$ C) $\frac{63}{13}$ D) $\frac{63}{65}$

Write the algebraic expression described. Simplify if possible.

105) Two numbers have a sum of 32. If one number is q , express the other number in terms of q . 105) _____
 A) $32 - 2q$ B) $q - 32$ C) $32 - q$ D) $q + 32$

106) A 30-centimeter piece of rope is cut into two pieces. If one piece is z centimeters long, express the other length as an algebraic expression in z . 106) _____
 A) $(z + 30)$ cm B) $(30 - z)$ cm C) $(z - 30)$ cm D) $(30 - 2z)$ cm

107) In the race for Student Body President, Jose received 325 more votes than Angela. If Angela received x votes, how many votes did Jose receive? 107) _____
 A) $(x - 325)$ votes B) $(x + 325)$ votes C) $325x$ votes D) $(325 - x)$ votes

108) During a walk-a-thon, Rosilyn walked 9 fewer laps than June walked. If June walked b laps, how many laps did Rosilyn walk? 108) _____
 A) $(b - 9)$ laps B) $\frac{b}{9}$ laps C) $(b + 9)$ laps D) $(9 - b)$ laps

109) If x represents the first of four consecutive even integers, express the sum of the four integers in terms of x . 109) _____
 A) $4x + 4$ B) $4x + 12$ C) $x + 12$ D) $4x + 6$

110) If x represents the first of four consecutive even integers, express the sum of the second integer and the fourth integer in terms of x . 110) _____
 A) $4x + 12$ B) $4x + 8$ C) $2x + 6$ D) $2x + 8$

111) If x is the first of three consecutive integers, express the sum of 37 and the third integer as an algebraic expression in terms of x . 111) _____
 A) $x + 38$ B) $x + 37$ C) $2x + 39$ D) $x + 39$

112) The sum of the angles of a triangle is 180° . If one angle of a triangle measures x° and a second angle measures $(6x + 25)^\circ$, express the measure of the third angle in terms of x . 112) _____

A) $(155 - 7x)^\circ$

B) $(155 - 6x)^\circ$

C) $(205 - 7x)^\circ$

D) $(155 + 7x)^\circ$

113) A quadrilateral is a four-sided figure whose angle sum is 360° . If one angle measures x° , a second angle measures $4x^\circ$, and a third angle measures $5x^\circ$, express the measure of the fourth angle in terms of x .

113) _____

A) $(360 - 9x)^\circ$

B) $(360 - 10x)^\circ$

C) $(360 + 10x)^\circ$

D) $(10x - 360)^\circ$

Solve.

114) A pharmacist is asked to give a customer 7.5 milliliters of an antibiotic over a period of 4 hours. If the antibiotic is to be given every 2 hours starting immediately, how much antibiotic should be given in each dose?

114) _____

A) 3.75 ml

B) 0.94 ml

C) 1.88 ml

D) 1.07 ml

Solve the equation.

115) $7x - (5x - 1) = 2$

115) _____

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

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

C) $\frac{1}{12}$

D) $\frac{1}{12}$

116) $3(2x - 1) = 12$

116) _____

A) $\frac{3}{2}$

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

C) $\frac{11}{6}$

D) $\frac{13}{6}$

117) $(y - 6) - (y + 2) = 5y$

117) _____

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

B) -2

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

D) $\frac{3}{5}$

118) $7n = 8(5n + 6)$

118) _____

A) $\frac{11}{16}$

B) $\frac{16}{11}$

C) $\frac{48}{7}$

D) $\frac{16}{11}$

119) $6y = 7(5y - 9)$

119) _____

A) $\frac{29}{63}$

B) $\frac{63}{29}$

C) $\frac{21}{2}$

D) $\frac{63}{29}$

120) $15(8x - 5) = 4x - 8$

120) _____

A) $\frac{67}{124}$

B) $\frac{83}{116}$

C) $\frac{67}{116}$

D) $\frac{67}{116}$

121) $2(y + 6) = 3(y - 8)$

121) _____

A) -12

B) 12

C) 36

D) -36

122) $3(2z - 4) = 5(z + 2)$

122) _____

A) 1

B) -2

C) 22

D) 2

123) $3(2z - 4) = 5(z - 4)$

123) _____

A) 32

B) 8

C) -8

D) 11

124) $-6x + 7(-2x - 2) = -29 - 5x$

124) _____

A) -1

B) 1

C) $\frac{43}{25}$

D) $\frac{43}{15}$

- 125) $\frac{1}{6}x - 3 = 1$ 125) _____
 A) -24 B) -12 C) 24 D) 12
- 126) $\frac{1}{5}x - \frac{1}{5} = -3$ 126) _____
 A) 16 B) 14 C) -14 D) -16
- 127) $\frac{x}{7} - 9 = -5$ 127) _____
 A) 28 B) -30 C) 30 D) -28
- 128) $\frac{2}{5}x - \frac{1}{3}x = 3$ 128) _____
 A) -90 B) -45 C) 45 D) 90
- 129) $\frac{3}{2}x + \frac{1}{5} = \frac{7}{5}x$ 129) _____
 A) -16 B) 2 C) 16 D) -2
- 130) $\frac{1}{3}x + 2 = \frac{1}{6}x + \frac{4}{3}$ 130) _____
 A) 4 B) -4 C) 3 D) -12
- 131) $\frac{4(8-x)}{3} = -x$ 131) _____
 A) -4 B) 32 C) -32 D) 4
- 132) $\frac{5(8-x)}{3} = x$ 132) _____
 A) -40 B) 40 C) -5 D) 5
- 133) $\frac{5(y-4)}{3} = 2y - 5$ 133) _____
 A) -5 B) -35 C) 35 D) 5
- 134) $-0.08y + 0.12(5000 - y) = 0.05y$ 134) _____
 A) 7200 B) 1500 C) 150 D) 2400
- 135) $-0.65(20) + 0.70x = 0.40(20 + x)$ 135) _____
 A) 70 B) 80 C) 35 D) 60
- 136) $0.50x - 0.30(50 + x) = -0.18(50)$ 136) _____
 A) 40 B) 15 C) 30 D) 20
- 137) $1.3x + 4.4 = 0.7x - 0.52$ 137) _____
 A) -8.19 B) -8.118 C) -8.2 D) 0.122
- 138) $7x - 5 - 7x + 1 = 6x - 6x - 7$ 138) _____

- A) -224
C) all real numbers

- B) no solution
D) 0

139) $4(x + 6) = (4x + 24)$

- A) all real numbers
C) no solution

- B) 48
D) 0

139) _____

140) $4(x + 5) - (4x + 20) = 0$

- A) no solution
C) 5

- B) 0
D) all real numbers

140) _____

141) $-7(x + 7) + 68 = 2x - 9(x + 1)$

- A) 59
C) no solution

- B) 77
D) all real numbers

141) _____

142) $\frac{x}{6} - 8 = \frac{x}{6}$

- A) all real numbers
C) 24

- B) 0
D) no solution

142) _____

143) $\frac{1}{3}(6x - 9) = 6\left(\frac{1}{3}x - \frac{1}{2}\right) + 8$

- A) no solution
C) 2

- B) all real numbers
D) 0

143) _____

144) $1.1m - 1.3 - 6.6m = -5.1 - 5.5m + 3.8$

- A) 0
C) -4.0

- B) no solution
D) all real numbers

144) _____

145) $0.07(6x - 6) = 0.42(x + 7) - 3.36$

- A) -0.42
C) no solution

- B) -3.36
D) all real numbers

145) _____

Write the phrase as a variable expression. Use x for the unknown number.

146) A number subtracted from -2

A) $-2 + x$

B) $-2 - x$

C) $x + 2$

D) $x - 2$

146) _____

147) Three times a number

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

B) $3x$

C) $x - 3$

D) $3 - x$

147) _____

148) The sum of -18 and twice a number

A) $2(-18 + x)$

B) $-18 + x$

C) $-18 + 2x$

D) $-18 - 2x$

148) _____

149) The difference of -15 and twice a number

A) $-15 - 2x$

B) $2(-15 - x)$

C) $2x + 15$

D) $-15 + 2x$

149) _____

150) The product of -24 and the sum of a number and 29

A) $-24x + 29$

B) $-24 + 29x$

C) $-24(x + 29)$

D) $-696x$

150) _____

151) The quotient of -13 and the difference of a number and 8

A) _____

151) _____

$$\frac{-13}{x-8}$$

B) $\frac{-13}{8-x}$

C) $\frac{8}{x+13}$

D) $\frac{-13}{x+8}$

Write the following as an equation, using x for the unknown number. Then solve.

152) Four times a number added to 8 times the number equals 60. Find the number. 152) _____

A) $4x + 8x = 60$; 5

B) $4x(8 + x) = 60$; 7.5

C) $4x - 8x = 60$; -7.5

D) $4(x + 8) = 60x$; 0.6

153) When 5 times a number is subtracted from 7 times the number, the result is 18. Find the number. 153) _____

A) $7x - 5x = 18$; 9

B) $5x(7 - x) = 18$; -9

C) $5x + 9x = 18$; 2

D) $5(x - 7) = 18x$; 0.4

154) If 5 times a number is added to -4, the result is equal to 9 times the number. Find the number. 154) _____

A) $5x + (-4) = 9x$; -1

B) $4x + (-4) = 9x$; 1

C) $14x - 9x = 4$; 1

D) $9(5x - 4) = -4$; -1

155) _____ 155) _____

Three-fourths of a number is $\frac{1}{2}$. Find the number in lowest terms.

A) $\frac{3}{4} + x = \frac{1}{2}$; -
 $\frac{1}{2}$

B) $\frac{3}{4}x = \frac{1}{2}$; $\frac{4}{6}$

C) $\frac{3}{4}x = \frac{1}{2}$; $\frac{3}{8}$

D) $\frac{3}{4}x = \frac{1}{2}$; $\frac{2}{3}$

156) The sum of four times a number and 3 is equal to the difference of twice the number and 1. Find the number. 156) _____

A) $4x + 3 = 2x - 1$; -2

B) $4(x + 3) = 2x - 1$; -
 $\frac{13}{2}$

C) $4x + 3 = 2x + 1$; -1

D) $4x + 3 = 2x - 1$; 2

Solve.

157) The sum of four times a number and three is the same as the difference of twice the number and eleven. Find the number. 157) _____

A) -7

B) 4

C) 7

D) -17

158) _____ 158) _____

The difference of triple a number and $\frac{1}{2}$ is equal to the sum of the number and $\frac{2}{3}$. Find the number.

A) $\frac{7}{12}$

B) $\frac{7}{12}$

C) $\frac{1}{12}$

D) $\frac{13}{12}$

159) If the sum of a number and two is doubled, the result is six less than three times the number. Find the number. 159) _____

A) 22

B) 5

C) 10

D) $\frac{2}{5}$

160) Four times the difference of a number and one is equal to six times the sum of the number and three. Find the number. 160) _____

A) -7

B) -2

C) 11

D) -11

161) Six times a number, added to -3, is 21. Find the number. 161) _____

- A) 24 B) 144 C) -4 D) 4
- 162) Nine times a number, added to -72, is 9. Find the number. 162) _____
 A) 9 B) 729 C) 81 D) -9
- 163) Four times the sum of some number plus 3 is equal to 7 times the number minus 15. 163) _____
 A) 27 B) 9 C) -9 D) -27
- 164) The difference of a number and 9 is the same as 47 less the number. Find the number. 164) _____
 A) -28 B) 19 C) 28 D) -19
- 165) Five times some number added to 3 amounts to -3 added to the product of 3 and the number. 165) _____
 A) -3 B) 6 C) -6 D) 3
- 166) Six times the sum of a number and -18 amounts to 42. Find the number. 166) _____
 A) -11 B) 4 C) 25 D) 10
- 167) A number subtracted from 12 is the quotient of -20 and -5. Find the number. 167) _____
 A) 8 B) 7 C) 16 D) -88
- 168) The president of a certain university makes three times as much money as one of the department heads. If the total of their salaries is \$200,000, find each worker's salary. 168) _____
 A) president's salary = \$100,000; department head's salary = \$50,000
 B) president's salary = \$50,000; department head's salary = \$150,000
 C) president's salary = \$15,000; department head's salary = \$5000
 D) president's salary = \$150,000; department head's salary = \$50,000
- 169) 30 marbles are to be divided into three bags so that the second bag has three times as many marbles as the first bag and the third bag has twice as many as the first bag. If x is the number of marbles in the first bag, find the number of marbles in each bag. 169) _____
 A) 1st bag = 5 marbles; 2nd bag = 10 marbles; 3rd bag = 15 marbles
 B) 1st bag = 6 marbles; 2nd bag = 14 marbles; 3rd bag = 10 marbles
 C) 1st bag = 6 marbles; 2nd bag = 18 marbles; 3rd bag = 12 marbles
 D) 1st bag = 5 marbles; 2nd bag = 15 marbles; 3rd bag = 10 marbles
- 170) 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 \$49 under this promotional deal, how many minutes of phone calls did he make? Round to the nearest integer, if necessary. 170) _____
 A) 680 B) 2 C) 7 D) 1280
- 171) Two angles are complementary if their sum is 90° . If the measure of the first angle is x° , and the measure of the second angle is $(3x - 2)^\circ$, find the measure of each angle. 171) _____
 A) 1st angle = 31° ; 2nd angle = 59° B) 1st angle = 22° ; 2nd angle = 64°
 C) 1st angle = 22° ; 2nd angle = 68° D) 1st angle = 23° ; 2nd angle = 67°
- 172) A car rental agency advertised renting a luxury, full-size car for \$34.95 per day and \$0.49 per mile. If you rent this car for 5 days, how many whole miles can you drive if you only have \$200 to spend. 172) _____
 A) 326 B) 40 C) 51 D) 75
- 173) A 12-ft. board is cut into 2 pieces so that one piece is 8 feet longer than 3 times the shorter piece. If the shorter piece is x feet long, find the lengths of both pieces. 173) _____

- A) shorter piece: 6 ft; longer piece: 36 ft
C) shorter piece: 1 ft; longer piece: 11 ft

- B) shorter piece: 24 ft; longer piece: 44 ft
D) shorter piece: 28 ft; longer piece: 36 ft

- 174) Mary and her brother John collect foreign coins. Mary has three times the number of coins that John has. Together they have 160 foreign coins. Find how many coins Mary has. 174) _____
A) 120 coins B) 40 coins C) 112 coins D) 24 coins
- 175) Center City East Parking Garage has a capacity of 259 cars more than Center City West Parking Garage. If the combined capacity for the two garages is 1225 cars, find the capacity for each garage. 175) _____
A) Center City East: 742 cars B) Center City East: 483 cars
Center City West: 483 cars Center City West: 742 cars
C) Center City East: 473 cars D) Center City East: 752 cars
Center City West: 752 cars Center City West: 473 cars
- 176) During an intramural basketball game, Team A scored 17 fewer points than Team B. Together, both teams scored a total of 147 points. How many points did Team A score during the game? 176) _____
A) 65 points B) 66 points C) 73 points D) 82 points
- 177) To trim the edges of a rectangular table cloth, 66 feet of lace are needed. The length of the table cloth is exactly one-half its width. What are the dimensions of the table cloth? 177) _____
A) length: 22 ft; width: 44 ft B) length: 11 ft; width: 22 ft
C) length: $5\frac{1}{2}$ ft; width: 11 ft D) length: 22 ft; width: 11 ft
- 178) The length of a rectangular room is 6 feet longer than twice the width. If the room's perimeter is 132 feet, what are the room's dimensions? 178) _____
A) Width = 20 ft; length = 46 ft B) Width = 25 ft; length = 56 ft
C) Width = 40 ft; length = 92 ft D) Width = 30 ft; length = 36 ft
- 179) The perimeter of a triangle is 45 centimeters. Find the lengths of its sides, if the longest side is 7 centimeters longer than the shortest side, and the remaining side is 2 centimeters longer than the shortest side. 179) _____
A) 12 cm, 14 cm, 19 cm B) 14 cm, 16 cm, 21 cm
C) 12 cm, 14 cm, 21 cm D) 5 cm, 10 cm, 12 cm
- 180) Mario's front patio is in the shape of a trapezoid with a height of 40 feet. The longer base is 8 feet longer than the shorter base, and the area of the patio is 8000 square feet. Find the length of each base of the trapezoidal patio. 180) _____
A) 392 ft; 408 ft B) 196 ft; 196 ft C) 196 ft; 204 ft D) 96 ft; 104 ft
- 181) In a recent International Gymnastics competition, the U.S., China, and Romania were the big winners. If the total number of medals won by each team are three consecutive integers whose sum is 72 and the U.S. won more than China who won more than Romania, how many medals did each team win? 181) _____
A) U.S.: 23 medals; China: 22 medals; Romania: 21 medals
B) U.S.: 26 medals; China: 25 medals; Romania: 24 medals
C) U.S.: 25 medals; China: 24 medals; Romania: 23 medals
D) U.S.: 74 medals; China: 73 medals; Romania: 72 medals
- 182) The sum of three consecutive integers is 468. Find the numbers. 182) _____
A) 156, 157, 158 B) 155, 156, 157 C) 154, 155, 156 D) 154, 156, 158

195) $V = \frac{1}{3}Ah$ for A 195) _____
 A) $A = \frac{3V}{h}$ B) $A = \frac{V}{3h}$ C) $A = \frac{3h}{V}$ D) $A = \frac{h}{3V}$

196) $P = a + b + c$ for c 196) _____
 A) $c = P - a - b$ B) $c = a + b - P$ C) $c = P + a - b$ D) $c = P + a + b$

197) $P = 2L + 2W$ for L 197) _____
 A) $L = P - W$ B) $L = \frac{P - W}{2}$ C) $L = \frac{P - 2W}{2}$ D) $L = P - 2W$

198) $A = P + PRT$ for T 198) _____
 A) $T = \frac{P - A}{PR}$ B) $T = \frac{A}{R}$ C) $T = \frac{PR}{A - P}$ D) $T = \frac{A - P}{PR}$

199) $A = \frac{1}{2}h(B + b)$ for B 199) _____
 A) $B = \frac{2A + bh}{h}$ B) $B = \frac{A - bh}{h}$ C) $B = \frac{2A - bh}{h}$ D) $B = 2A - bh$

200) $F = \frac{9}{5}C + 32$ for C 200) _____
 A) $C = \frac{9}{5}(F - 32)$ B) $C = \frac{F - 32}{9}$ C) $C = \frac{5}{F - 32}$ D) $C = \frac{5}{9}(F - 32)$

201) $S = 2\pi rh + 2\pi r^2$ for h 201) _____
 A) $h = S - r$ B) $h = \frac{S}{2\pi r} - 1$ C) $h = 2\pi(S - r)$ D) $h = \frac{S - 2\pi r^2}{2\pi r}$

Solve.

202) You have taken up gardening for relaxation and have decided to fence in your new rectangular shaped masterpiece. The length of the garden is 6 meters and 28 meters of fencing is required to completely enclose it. What is the width of the garden? 202) _____
 A) 168 m B) 8 m C) 4.67 m D) 16 m

203) Ted drove to his grandparents' house for a holiday weekend. The total distance (one-way) was 443 miles and it took him 15 hours. How fast was Ted driving? (Round answer to the nearest whole number) 203) _____
 A) 30 mph B) 34 mph C) 66 mph D) 665 mph

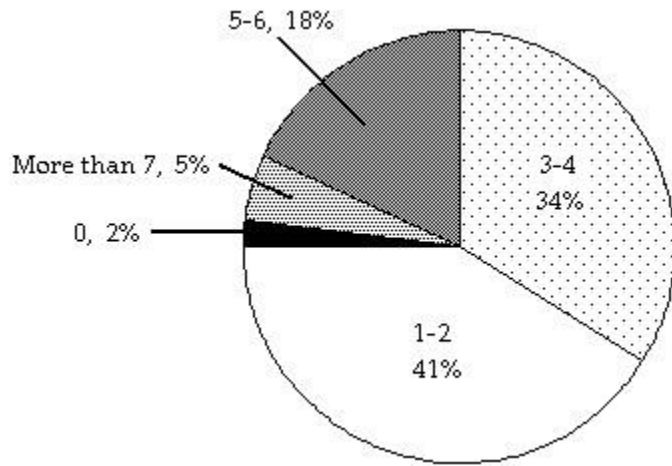
204) Sally is making a cover for a round table. When finished, the cover will fit exactly with no excess hanging off. Sally has to cut the fabric circle with a 4 inch larger diameter than the table to allow for hemming. If the table has a diameter of 34 inches, how much fabric does Sally need? (Use 3.14 for π . Round to 2 decimal places.) 204) _____
 A) 4534.16 sq in. B) 1384.74 sq in. C) 4069.44 sq in. D) 1133.54 sq in.

- 205) How much would an initial bank deposit need to be in order to earn \$1400 at 13% for 7 years? (Round to the nearest dollar.) 205) _____
 A) \$1274 B) \$15 C) \$127,400 D) \$1538
- 206) How long would it take to drive 350 kilometers if your average rate of speed was 70 kilometers per hour? 206) _____
 A) 42 hr B) 245 hr C) 6 hr D) 5 hr
- 207) Nathan invested his \$6000 poker winnings in a 5 year Certificate of Deposit at a rate of 0.05. Use the formula $I = Prt$ to find the amount of interest Nathan's investment will earn. 207) _____
 A) \$7,500 B) \$300 C) \$1,500 D) \$6,300
- 208) You have a cylindrical cooking pot whose radius is 6 inches and whose height is 7 inches. How many full cans of soup will fit into the pot if each can holds 10 cubic inches of soup? Use 3.14 as an approximation for π . 208) _____
 A) 26 cans of soup B) 25 cans of soup C) 79 cans of soup D) 80 cans of soup
- 209) The volume of a sphere with radius r is given by the formula $V = \frac{4}{3} \pi r^3$. Find the volume of a sphere with radius 4 meters. Use 3.14 for the value of π . 209) _____
 A) 85.33 sq m B) 66.99 sq m C) 803.85 sq m D) 267.95 sq m
- 210) Find the height of a right circular cylinder whose volume is 576π cubic feet and whose radius is 8 feet. 210) _____
 A) 72 ft B) 9 ft C) 8 ft D) 81 ft

Solve. Round all amounts to one decimal place.

- 211) What number is 80% of 100? 211) _____
 A) 80 B) 8 C) 800 D) 8000
- 212) 93 is 10% of what number? 212) _____
 A) 930 B) 93 C) 9.3 D) 9300
- 213) 40% of what number is 80? 213) _____
 A) 32 B) 2000 C) 20 D) 200
- 214) 3 is what percent of 12? 214) _____
 A) 2.5% B) 400% C) 0.3% D) 25%
- 215) 80% of what number is 80? 215) _____
 A) 64 B) 1000 C) 100 D) 10

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



216) What percent of college students consume more than 7 pizzas in a typical month? 216) _____
 A) 34% B) 2% C) 5% D) 18%

217) If State University has approximately 28,000 students, about how many would you expect to consume 5-6 pizzas in a typical month? 217) _____
 A) 9520 students B) 504 students C) 5040 students D) 952 students

Solve. If needed, round money amounts to two decimal places and all other amounts to one decimal place.

218) Sales at a local ice cream shop went up 30% in 5 years. If 37,000 ice cream cones were sold in the current year, find the number of ice cream cones sold 5 years ago. (Round to the nearest integer, if necessary.) 218) _____
 A) 25,900 ice cream cones B) 11,100 ice cream cones
 C) 28,462 ice cream cones D) 123,333 ice cream cones

219) Attendance this year at the homecoming football game is 142% of what it was last year. If last year's homecoming football game attendance was 48,000, what is this year's attendance? (Round to the nearest integer, if necessary.) 219) _____
 A) 681,600 people B) 68,160 people C) 338 people D) 2958 people

220) Of the 150 students in an algebra class, 1 of them received an F on the mid-term exam. What percent of the algebra students received an F on the exam? (Round to the nearest tenth of a percent, if necessary.) 220) _____
 A) 6.7% B) 150% C) 0.7% D) 1500%

221) 8% of students at a university attended a lecture. If 7000 students are enrolled at the university, about how many students attended the lecture? 221) _____
 A) 56,000 students B) 5600 students C) 56 students D) 560 students

222) The population of a town is currently 35,000. This represents an increase of 80% from the population 5 years ago. Find the population of the town 5 years ago. Round to the nearest whole number if necessary. 222) _____
 A) 19,444 B) 43,750 C) 7000 D) 28,000

223) Students at Maple School earned \$222 selling candles. They want to accumulate \$2000 for a club trip. What percent of their goal has been reached? 223) _____
 A) 90% B) 0.111% C) 9% D) 11.1%

224) Jeans are on sale at the local department store for 25% off. If the jeans originally cost \$43, find the sale price. 224) _____

A) \$32.25 B) \$10.75 C) \$41.93 D) \$53.75

- 225) The local clothing store marks up the price that it pays to the clothing manufacturer by 50%. If the selling price of a pair of jeans is \$101, how much did the clothing store pay for the jeans? 225) _____
A) \$202.00 B) \$16.83 C) \$67.33 D) \$151.50
- 226) A store is advertising 35% off sale on everything in the store. Find the discount of a watch that regularly sells for \$270. 226) _____
A) \$9.45 B) \$94.50 C) \$175.50 D) \$260.55
- 227) A store is advertising 20% off sale on everything in the store. Find the discount of a sofa that regularly sells for \$3000. 227) _____
A) \$2940.00 B) \$600.00 C) \$60.00 D) \$2400.00
- 228) A store is advertising a 25% off sale on all new DVD releases. Find the sale price of a newly released DVD collectors set that regularly sells for \$41.00. 228) _____
A) \$39.98 B) \$10.25 C) \$1.03 D) \$30.75
- 229) An automobile dealership recently reduced the price of a used sports car by 13%. If the price of the car was \$33,600.00, find the sale price. 229) _____
A) \$4368.00 B) \$436.80 C) \$29,232.00 D) \$33,163.20
- 230) A store is advertising 45% off sale on everything in the store. Find the sale price of a watch that regularly sells for \$240. 230) _____
A) \$2292.00 B) \$10.80 C) \$108.00 D) \$132.00
- 231) Due to a lack of funding, the number of students enrolled at City College went from 9000 last year to 5000 this year. Find the percent decrease in enrollment. 231) _____
A) 80% B) 55.6% C) 180% D) 44.4%
- 232) A company increased the number of its employees from 540 to 575. What was the percent increase in employees? 232) _____
A) 51.6% B) 6.1% C) 6.5% D) 93.9%
- 233) The number of video stores in a region recently decreased from 102 to 82. Find the percent decrease. 233) _____
A) 80.4% B) 19.6% C) 24.4% D) 410%
- 234) Ming got a 11% raise in her salary from last year. This year she is earning \$97,680. How much did she make last year? 234) _____
A) \$88,000 B) \$8880 C) \$9680 D) \$1,074,480
- 235) Because of budget cutbacks, MaryAnn was required to take a 11% pay cut. If she earned \$58,000 before the pay cut, find her salary after the pay cut. 235) _____
A) \$57,936.20 B) \$57,362 C) \$51,620 D) \$5162
- 236) How much pure acid should be mixed with 2 gallons of a 50% acid solution in order to get an 80% acid solution? 236) _____
A) 1 gal B) 8 gal C) 3 gal D) 5 gal
- 237) The owners of a candy store want to sell, for \$6 per pound, a mixture of chocolate-covered raisi ns,

which 237)

usually
sells for
\$3 per
pound,
and
chocolate
-covered
macada
mia nuts,
which
usually
sells for
\$8 per
pound.
They
have a
70-pound
barrel of
the
raisins.
How
many
pounds
of the
nuts
should
they mix
with the
barrel of
raisins so
that they
hit their
target
value of
\$6 per
pound
for the
mixture?

A) 98 lb

B) 112 lb

C) 91 lb

D) 105 lb

238) A chemist needs 110 milliliters of a 80% solution but has only 76% and 98% solutions available. 238) _____
Find how many milliliters of each that should be mixed to get the desired solution.

A) 20 ml of 76%; 90 ml of 98%

B) 90 ml of 76%; 20 ml of 98%

C) 100 ml of 76%; 10 ml of 98%

D) 10 ml of 76%; 100 ml of 98%

239) The manager of a coffee shop has one type of coffee that sells for \$5 per pound and another type 239) _____
that sells for \$14 per pound. The manager wishes to mix 30 pounds of the \$14 coffee to get a
mixture that will sell for \$8 per pound. How many pounds of the \$5 coffee should be used?

A) 45 pounds

B) 90 pounds

C) 60 pounds

D) 30 pounds

240) At a gourmet nut shop, nuts are sold in bulk. Cashews sell for \$1.40 per pound and macadamia nuts sell

for \$8.55 240)

per
pound.
Lee
wishes to
purchase
5 pounds
of mixed
nuts by
mixing
3.5
pounds
of
cashews
and 1.5
pounds
of
macada
mia nuts.
What
will be
the price
per
pound of
the
mixture?

- A) \$3.55 B) \$32.03 C) \$6.41 D) \$17.73

241) The radiator in a certain make of car needs to contain 30 liters of 40% antifreeze. The radiator now contains 30 liters of 20% antifreeze. How many liters of this solution must be drained and replaced with 100% antifreeze to get the desired strength? 241) _____

- A) 15 L B) 10.0 L C) 12 L D) 7.5 L

Solve.

242) A motorcycle traveling at 50 miles per hour overtakes a car traveling at 30 miles per hour that had a three-hour head start. How far from the starting point are the two vehicles? 242) _____

- A) $\frac{1}{7^2}$ mi B) $\frac{1}{56^4}$ mi C) 225 mi D) $\frac{1}{4^2}$ mi

243) Linda and Dave leave simultaneously from the same starting point biking in opposite directions. Linda bikes at 7 miles per hour and Dave bikes at 8 miles per hour. How long will it be until they are 30 miles apart from each other? 243) _____

- A) 30 hr B) 2 hr C) $\frac{1}{2}$ hr D) $\frac{15}{28}$ hr

244) Jeff starts driving at 75 miles per hour from the same point that Lauren starts driving at 70 miles per hour. They drive in opposite directions, and Lauren has a half-hour head start. How long will they be able to talk on their cell phones that have a 330-mile range? 244) _____

- A) $\frac{1}{2^{29}}$ hr B) $\frac{79}{2^{290}}$ hr C) $\frac{15}{2^{29}}$ hr D) $\frac{8}{2^{29}}$ hr

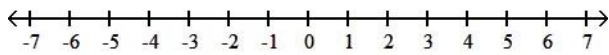
- 254) How can \$56,000 be invested, part at 4% annual simple interest and the remainder at 10% annual simple interest, so that the interest earned by the two accounts is equal at the end of the year? 254) _____
- A) \$30,000 invested at 4%; \$26,000 invested at 10%
 B) \$16,000 invested at 4%; \$40,000 invested at 10%
 C) \$26,000 invested at 4%; \$30,000 invested at 10%
 D) \$40,000 invested at 4%; \$16,000 invested at 10%

- 255) Melissa invested a sum of money at 3% annual simple interest. She invested three times that sum at 5% annual simple interest. If her total yearly interest from both investments was \$3600, how much was invested at 3%? 255) _____
- A) \$45,000 B) \$15,000 C) \$135,000 D) \$20,000

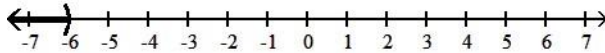
- 256) If \$2000 is invested at 10% simple annual interest, how much should be invested at 12% annual simple interest so that the total yearly income from both investments is \$5000? 256) _____
- A) \$47,600 B) \$4000 C) \$40,000 D) \$4760

Graph the set of numbers given in interval notation. Then write an inequality statement in x describing the numbers graphed.

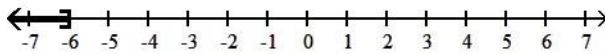
- 257) $(-6, \infty)$ 257) _____



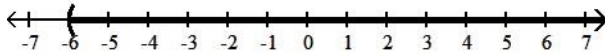
A) $x < -6$



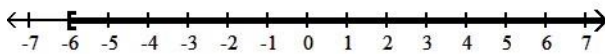
B) $x \leq -6$



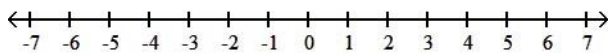
C) $x > -6$



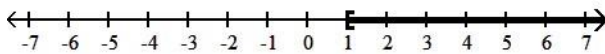
D) $x \geq -6$



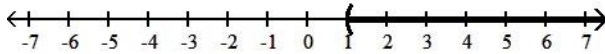
- 258) $[1, \infty)$ 258) _____



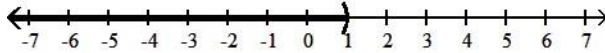
A) $x \geq 1$



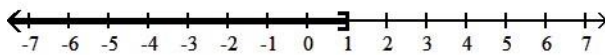
B) $x > 1$



C) $x < 1$

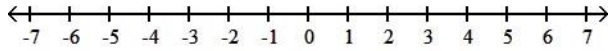


D) $x \leq 1$

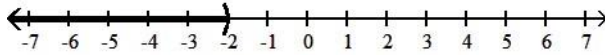


259) $(-\infty, -2)$

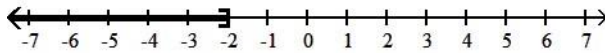
259) _____



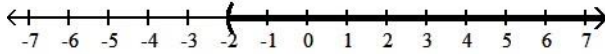
A) $x < -2$



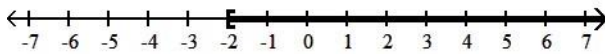
B) $x \leq -2$



C) $x > -2$

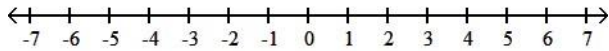


D) $x \geq -2$

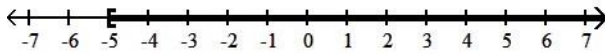


260) $(-\infty, -5]$

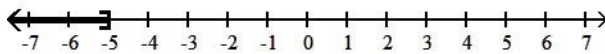
260) _____



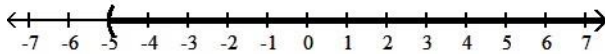
A) $x \geq -5$



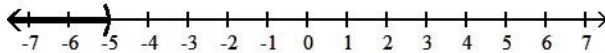
B) $x \leq -5$



C) $x > -5$



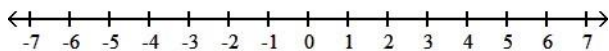
D) $x < -5$



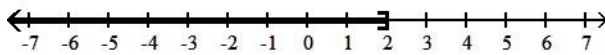
Graph the inequality on a number line. Then write the solution in interval notation.

261) $x < 2$

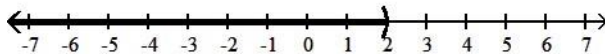
261) _____



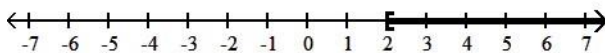
A) $(-\infty, 2]$



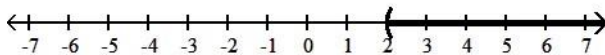
B) $(-\infty, 2)$



C) $[2, \infty)$

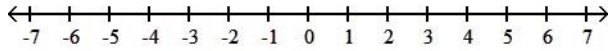


D) $(2, \infty)$

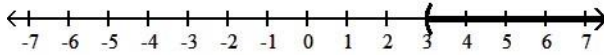


262) $x \leq 3$

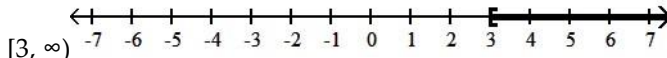
262) _____



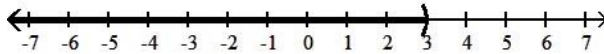
A) $(3, \infty)$



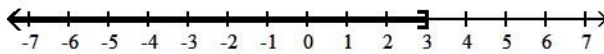
B)



C) $(-\infty, 3)$

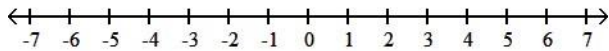


D) $(-\infty, 3]$

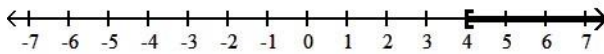


263) $x > 4$

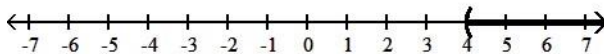
263) _____



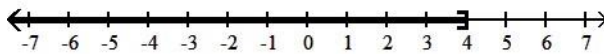
A) $[4, \infty)$



B) $(4, \infty)$



C) $(-\infty, 4]$

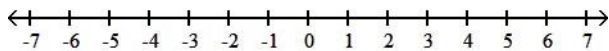


D) $(-\infty, 4)$

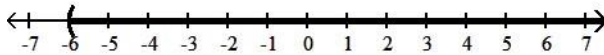


264) $x \geq -6$

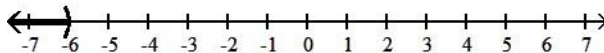
264) _____



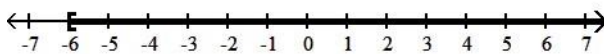
A) $(-6, \infty)$



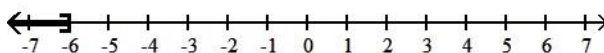
B) $(-\infty, -6)$



C) $[-6, \infty)$

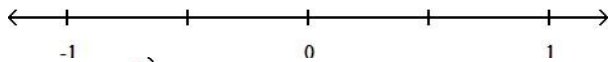


D) $(-\infty, -6]$

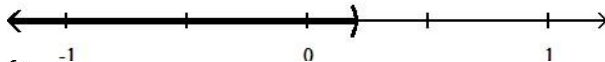


265) $\frac{1}{5}$
 $x >$

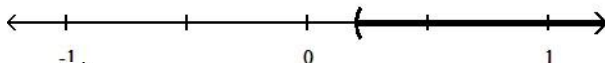
265) _____



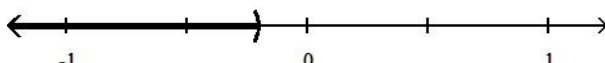
A) $(-\infty, \frac{1}{5})$



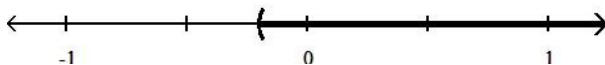
B) $(\frac{1}{5}, \infty)$



C) $(-\infty, \frac{1}{5})$



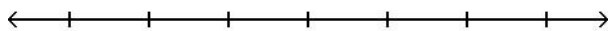
D) $(\frac{1}{5}, \infty)$



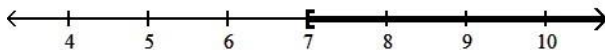
Solve the inequality. Graph the solution set and write it in interval notation.

266) $x + 10 < 17$

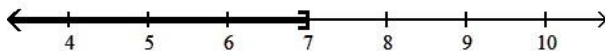
266) _____



A) $[7, \infty)$



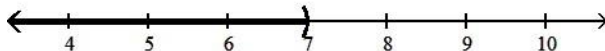
B) $(-\infty, 7]$



C) $(7, \infty)$

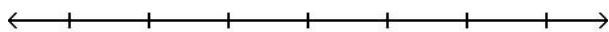


D) $(-\infty, 7)$

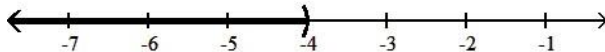


267) $6x - 1 > 5x - 5$

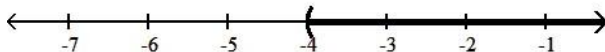
267) _____



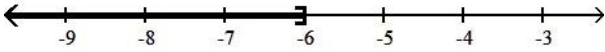
A) $(-\infty, -4)$



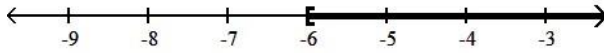
B) $(-4, \infty)$



C) $(-\infty, -6]$

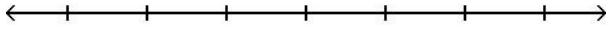


D) $[-6, \infty)$

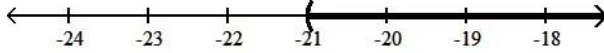


268) $\frac{1}{7}x$
 $-3 \geq$

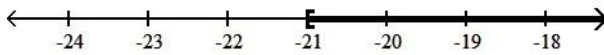
268) _____



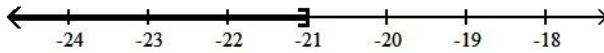
A) $(-21, \infty)$



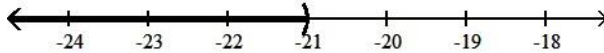
B) $[-21, \infty)$



C) $(-\infty, -21]$

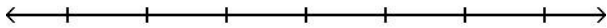


D) $(-\infty, -21)$

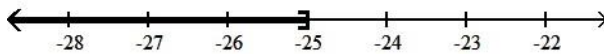


269) $\frac{1}{5}x < 5$

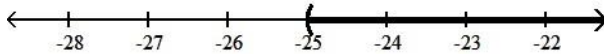
269) _____



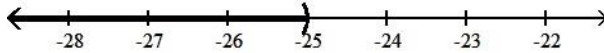
A) $(-\infty, -25]$



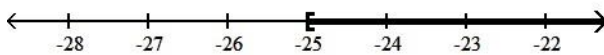
B) $(-25, \infty)$



C) $(-\infty, -25)$

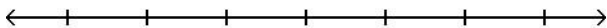


D) $[-25, \infty)$

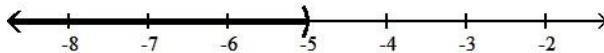


270) $15x - 15 > 5(2x - 8)$

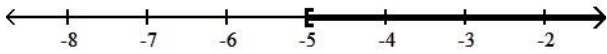
270) _____



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



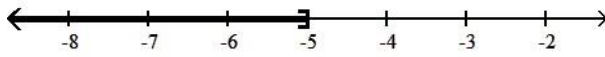
B) $[-5, \infty)$



C) $(-5, \infty)$

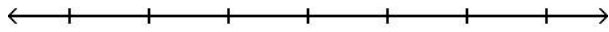


D) $(-\infty, -5]$

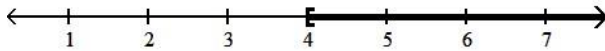


271) $-5(5x - 3) < -30x + 35$

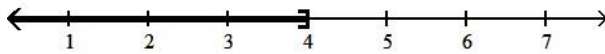
271) _____



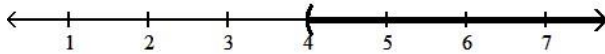
A) $[4, \infty)$



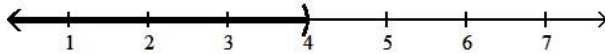
B) $(-\infty, 4]$



C) $(4, \infty)$

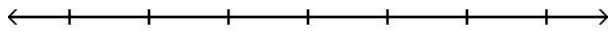


D) $(-\infty, 4)$

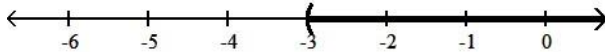


272) $-18x + 12 \leq -6(2x - 5)$

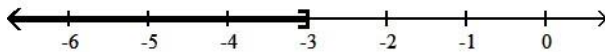
272) _____



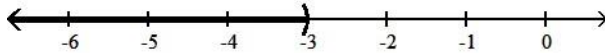
A) $(-3, \infty)$



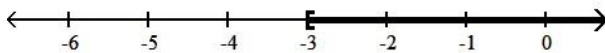
B) $(-\infty, -3]$



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

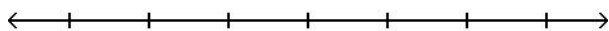


D) $[-3, \infty)$

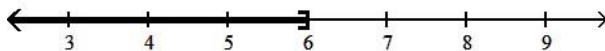


273) $25x + 25 \leq 5(4x + 11)$

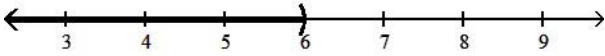
273) _____



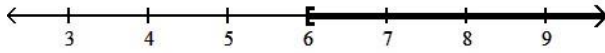
A) $(-\infty, 6]$



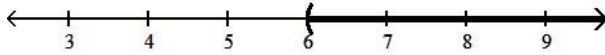
B) $(-\infty, 6)$



C) $[6, \infty)$

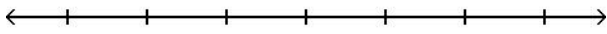


D) $(6, \infty)$



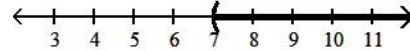
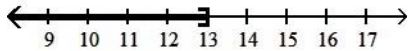
274) $-4x + 6 - 5x < 10 - 11x + 10$

274) _____



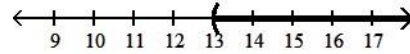
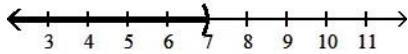
A) $(-\infty, 13]$

B) $(7, \infty)$



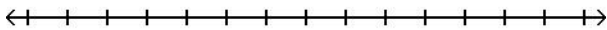
C) $(-\infty, 7)$

D) $(13, \infty)$

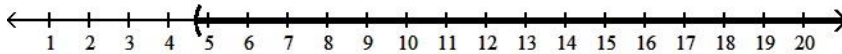


275) $\frac{7}{9}x \geq 6$

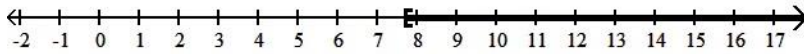
275) _____



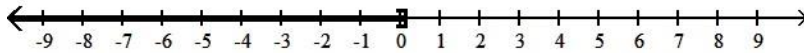
A) $\left[\frac{14}{3}, \infty\right)$



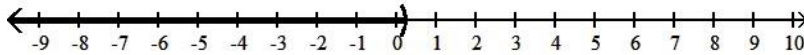
B) $\left[\frac{54}{7}, \infty\right)$



C) $(-\infty, \frac{7}{54}]$



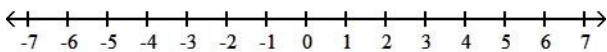
D) $(-\infty, \frac{3}{14}]$



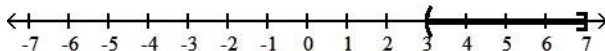
Graph the inequality on a number line. Then write the solution in interval notation.

276) $3 \leq x \leq 7$

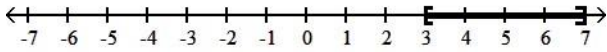
276) _____



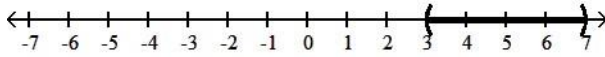
A) $(3, 7]$



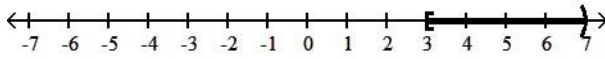
B) $[3, 7]$



C) (3, 7)

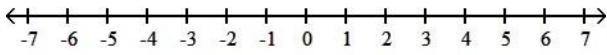


D) [3, 7)

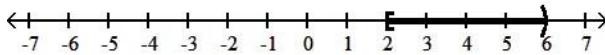


277) $2 < x < 6$

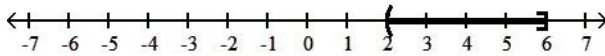
277) _____



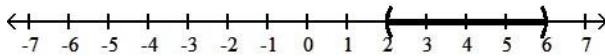
A) [2, 6)



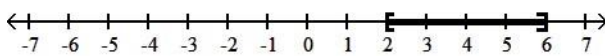
B) (2, 6]



C) (2, 6)

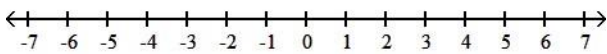


D) [2, 6]

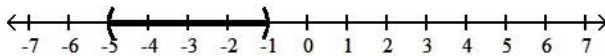


278) $-5 \leq x < -1$

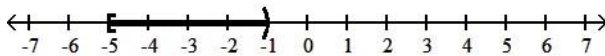
278) _____



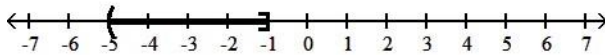
A) (-5, -1)



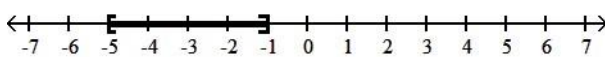
B) [-5, -1)



C) (-5, -1]



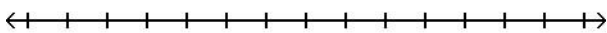
D) [-5, -1]



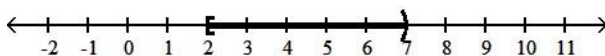
Solve the inequality. Graph the solution set and write it in interval notation.

279) $4 < 2x \leq 14$

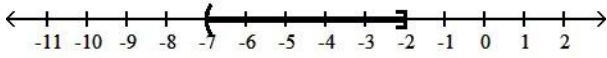
279) _____



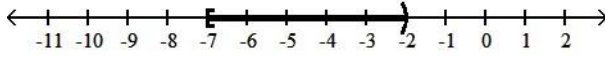
A) [2, 7)



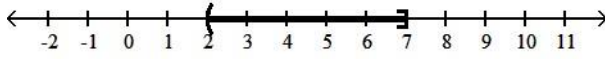
B) (-7, -2]



C) $[-7, -2]$

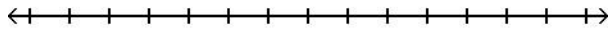


D) $(2, 7]$

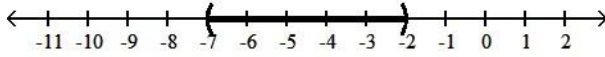


280) $3 \leq 3x - 3 \leq 18$

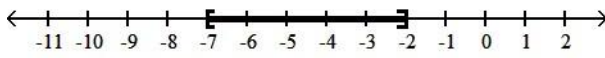
280) _____



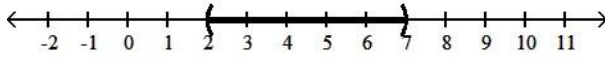
A) $(-7, -2)$



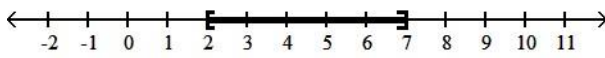
B) $[-7, -2]$



C) $(2, 7)$

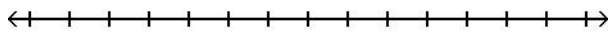


D) $[2, 7]$

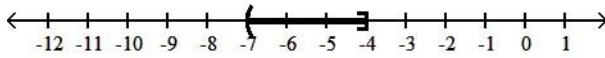


281) $-18 \leq -2x - 4 < -12$

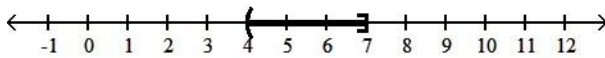
281) _____



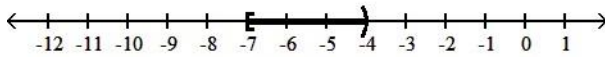
A) $(-7, -4]$



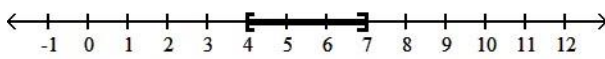
B) $(4, 7]$



C) $[-7, -4)$

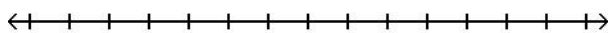


D) $[4, 7]$

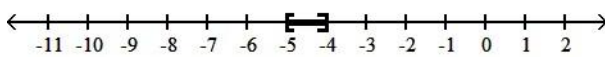


282) $-15 \leq -2x - 5 \leq -13$

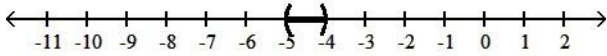
282) _____



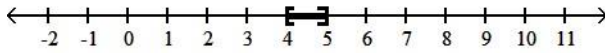
A) $[-5, -4]$



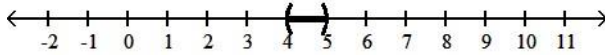
B) $(-5, -4)$



C) $[4, 5]$

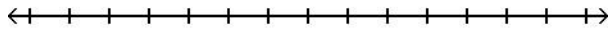


D) $(4, 5)$

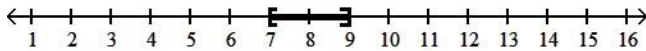


283) $4 \leq 2(x - 5) \leq 8$

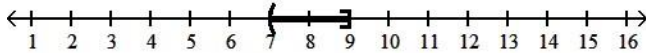
283) _____



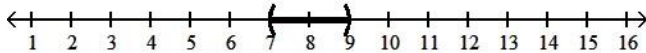
A) $[7, 9]$



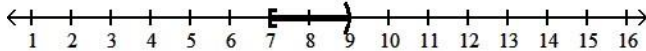
B) $(7, 9]$



C) $(7, 9)$



D) $[7, 9)$



Solve.

284) Three less than three times a number is less than ten. Find all such numbers.

284) _____

A) $\frac{19}{3}$
 $x <$

B) $\frac{7}{3}$
 $x >$

C) $\frac{7}{3}$
 $x <$

D) $\frac{13}{3}$
 $x <$

285) The area of a rectangle must be at least 105 square feet. If the length is 7 feet, find the minimum for the rectangle's width.

285) _____

A) $\frac{1}{15}$ ft

B) 15 ft

C) $\frac{1}{45}$ ft

D) 16 ft

286) Claire has received scores of 85, 88, 87, and 85 on her algebra tests. What is the minimum score she must receive on the fifth test to have an overall test score average of at least 88? (Hint: The average of a list of numbers is their sum divided by the number of numbers in the list.)

286) _____

A) 94

B) 95

C) 93

D) 96

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

287) _____

A) 17.2%

B) 13.2%

C) 14.2%

D) 15.2%

288) A certain store has a fax machine available for use by its customers. The store charges \$2.30 to send the first page and \$0.40 for each subsequent page. Use an inequality to find the maximum

num of pages

that can be faxed for \$6.70

- A) at most 17 pages
 B) at most 12 pages
 C) at most 57 pages
 D) at most 3 pages

289) An archer has \$178 to spend on a new archery set. A certain set containing a bow and three arrows costs \$52. With the purchase of this set, he can purchase additional arrows for \$9 per arrow. Use an inequality to find the maximum number of arrows he could obtain, including those with the set, for his \$178. 289) _____

- A) $\frac{89}{26}$ at most arrows
 B) at most 14 arrows
 C) at most 17 arrows
 D) $\frac{178}{9}$ at most arrows

290) A certain vehicle has a weight limit for all passengers and cargo of 1262 pounds. The four passengers in the vehicle weigh an average of 180 pounds. Use an inequality to find the maximum weight of the cargo that the vehicle can handle. 290) _____

- A) at most 542 lb
 B) at most 631 lb
 C) at most 1082 lb
 D) $\frac{631}{90}$ at most lb

291) Professor Chang will give a student in her algebra class an A if his or her final score is at least 93, a B if the score is between 84 and 92, inclusive, and a C if the score is between 75 and 83, inclusive. Any student with a score between 66 and 74, inclusive, will receive a D, and anyone with a score at or below 65 will fail with a grade of an F. Letting x represent a student's grade, write a series of five inequalities corresponding to the possible grades given in the class 291) _____

- | | | | | | | | |
|---------------------|---|---------------------|---|------------------|---|---------------------|---|
| A) $x \geq 93$ | A | B) $x > 93$ | A | C) $x \geq 93$ | A | D) $x \geq 93$ | A |
| $84 \geq x \geq 92$ | B | $84 \leq x \leq 92$ | B | $84 \leq x < 92$ | B | $84 \leq x \leq 92$ | B |
| $75 \geq x \geq 83$ | C | $75 \leq x \leq 83$ | C | $75 \leq x < 83$ | C | $75 \leq x \leq 83$ | C |
| $66 \geq x \geq 74$ | D | $66 \leq x \leq 74$ | D | $66 \leq x < 74$ | D | $66 \leq x \leq 74$ | D |
| $x \leq 65$ | F | $x < 65$ | F | $x \leq 65$ | F | $x \leq 65$ | F |

292) Three-fourths a number decreased by one is between negative four and fifteen. Find all such numbers. 292) _____

- A) $\frac{64}{3}$
 $-4 < x <$
 B) $\frac{64}{3}$
 $< x < -4$
 C) $\frac{9}{4}$
 $< x < 12$
 D) $\frac{20}{3}$
 $< x < \frac{64}{3}$

Fill in the blank with one of the words or phrases listed below.

- | | | |
|----------------------|-----------------------|-----------------------------------|
| like terms | numerical coefficient | linear equation in one variable |
| equivalent equations | formula | linear inequality in one variable |
| reversed | unlike terms | compound inequalities |
| the same | no solution | all real numbers |

293) Terms with the same variables raised to exactly the same powers are called _____. 293) _____
 A) unlike terms
 B) equivalent equations
 C) compound inequalities
 D) like terms

294) If terms are not like terms, they are _____. 294) _____
 A) like terms
 B) unlike terms
 C) compound inequalities
 D) equivalent equations

- 295) A(n) _____ can be written in the form $ax + b = c$. 295) _____
 A) linear inequality in one variable B) linear equation in one variable
 C) formula D) numerical coefficient
- 296) A(n) _____ can be written in the form $ax + b < c$, (or $>$, \leq , \geq). 296) _____
 A) linear inequality in one variable B) formula
 C) numerical coefficient D) linear equation in one variable
- 297) Inequalities containing two inequality symbols are called _____. 297) _____
 A) like terms B) compound inequalities
 C) linear inequality in one variable D) equivalent equations
- 298) An equation that describes a known relationship among quantities is called a _____. 298) _____
 A) numerical coefficient B) linear inequality in one variable
 C) linear equation in one variable D) formula
- 299) The _____ of a term is its numerical factor. 299) _____
 A) like terms B) numerical coefficient
 C) compound inequalities D) formula
- 300) Equations that have the same solution are called _____. 300) _____
 A) numerical coefficient B) equivalent equations
 C) like terms D) compound inequalities
- 301) The solution(s) to the equation $x + 5 = x + 5$ is/are _____. 301) _____
 A) no solution B) like terms
 C) the same D) all real numbers
- 302) The solution(s) to the equation $x + 5 = x + 4$ is/are _____. 302) _____
 A) unlike terms B) all real numbers
 C) reversed D) no solution
- 303) If both sides of an inequality are multiplied or divided by the same positive number, the direction of the inequality symbol is _____. 303) _____
 A) all real numbers B) the same
 C) no solution D) reversed
- 304) If both sides of an inequality are multiplied by the same negative number, the direction of the inequality symbol is _____. 304) _____
 A) the same B) all real numbers
 C) no solution D) reversed

Simplify the expression.

- 305) $7y + 8 - 2y + 9$ 305) _____
 A) $9y + 17$ B) $22y$ C) $5y + 17$ D) $5y - 1$
- 306) $2.3x + 5.1 + 4.2x - 7.4$ 306) _____
 A) $6.5x - 12.5$ B) $6.5x + 2.3$ C) -6 D) $6.5x - 2.3$

- 307) $2(x - 3) - 4(3x - 6)$ 307) _____
 A) $-10x + 18$ B) $-14x + 30$ C) $-10x - 9$ D) $10x + 18$
- 308) $8 + 3(5y - 4)$ 308) _____
 A) $15y - 20$ B) $15y - 4$ C) $15y + 32$ D) $15y + 4$

Solve the equation.

- 309) $\frac{1}{5}x = -8$ 309) _____
 A) 40 B) -14 C) -13 D) 1
- 310) $5(2n - 2) = 9(n + 4)$ 310) _____
 A) 26 B) -26 C) 31 D) 46
- 311) $7y - 6 + y = -(y + 9y)$ 311) _____
 A) 0 B) $\frac{1}{3}$ C) $\frac{1}{3}$ D) no solution
- 312) $-7z + 7 + 5z = -3z + 12$ 312) _____
 A) -7 B) 5 C) 12 D) -12
- 313) $\frac{4(x - 4)}{5} = x - 7$ 313) _____
 A) 39 B) 19 C) -9 D) -19
- 314) $\frac{1}{2} - x + \frac{15}{2} = x - 6$ 314) _____
 A) 1 B) 14 C) -7 D) 7
- 315) $-0.3(x - 3) + x = 0.5(9 - x)$ 315) _____
 A) 3 B) 2 C) 4.5 D) 18
- 316) $-3(4x + 2) - 2 = -4(x + 1) + 3x$ 316) _____
 A) $\frac{1}{11}$ B) $\frac{4}{13}$ C) $\frac{4}{11}$ D) $\frac{4}{11}$
- 317) $-3(x - 5) = x + 7 - 4x$ 317) _____
 A) $-$ B) 0 C) $<a>$ D) no solution
- 318) Find the value of x if $y = -21$, $m = 2$ and $b = -3$ in the formula $y = mx + b$. 318) _____
 A) $x = -36$ B) $x = 36$ C) $x = -9$ D) $x = 9$

Solve the equation for the indicated variable.

- 319) $I = Prt$ for t 319) _____
 A) $t = \frac{P - I}{Ir}$ B) $t = \frac{P - I}{1 + r}$ C) $t = P - Ir$ D) $t = \frac{I}{Pr}$
- 320) $2x - 3y = 13$ for y 320) _____
 A) _____ B) _____ C) _____ D) _____

$$\frac{2x - 13}{-3}$$

B) $y = \frac{2x + 13}{3}$

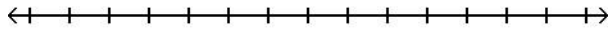
C) $y = \frac{2x + 13}{-3}$

D) $y = \frac{2x - 13}{3}$

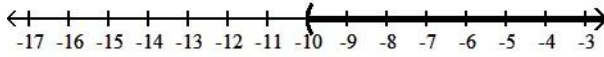
Solve the inequality. Graph the solution set and write it in interval notation.

321) $6x - 2 \geq 5x - 8$

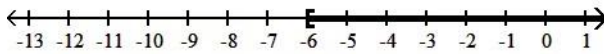
321) _____



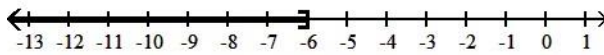
A) $(-10, \infty)$



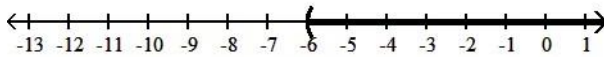
B) $[-6, \infty)$



C) $(-\infty, -6]$

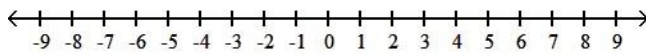


D) $(-6, \infty)$

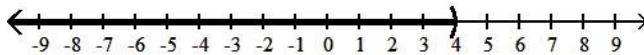


322) $x + 4 > 3x - 4$

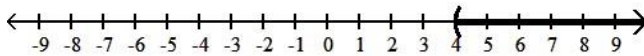
322) _____



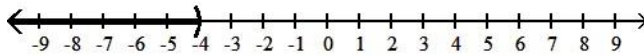
A) $(-\infty, 4)$



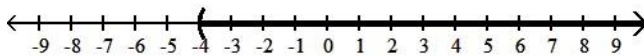
B) $(4, \infty)$



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

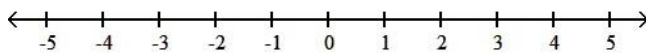


D) $(-4, \infty)$

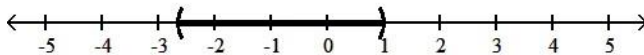


323) $-5 < 3x - 2 < 6$

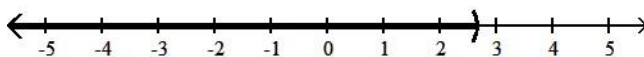
323) _____



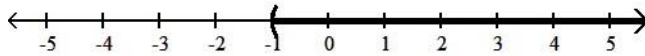
A) $\left(-\frac{8}{3}, 1\right)$



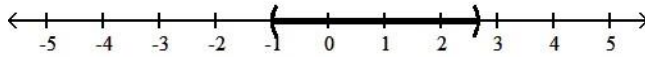
B) $\left(-\infty, \frac{8}{3}\right)$



C) $(-1, \infty)$

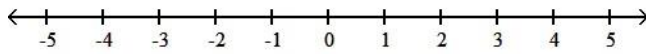


D) $(-1, \frac{8}{3})$

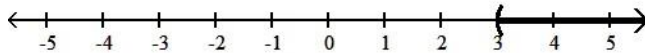


324) $\frac{3(2x - 1)}{5} > 3$

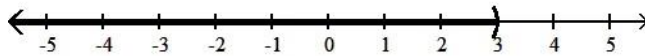
324) _____



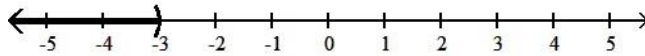
A) $(3, \infty)$



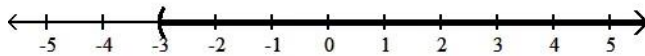
B) $(-\infty, 3)$



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



D) $(-3, \infty)$



Solve.

325) A number increased by three-fourths of the number is 21. Find the number.

325) _____

- A) 7 B) 4 C) 3 D) 12

326) The house numbers of two adjacent homes are two consecutive even numbers. If their sum is 386, find the house numbers.

326) _____

- A) 192, 194 B) 191, 193 C) 192, 384 D) 193, 195

327) The Discovery Museum is building a second parking garage. The second parking garage will have double the capacity, in parking spaces, of their original parking garage. If the sum of these integers is 1293 , find the capacity for both parking garages.

327) _____

- A) 531 spaces, 762 spaces B) 431 spaces, 862 spaces
C) 331 spaces, 762 spaces D) 331 spaces, 962 spaces

328) Melissa invested an amount of money in a stock that earned an annual 3% return. She invested three times the original amount in another stock that earned an annual 5% return. If her total yearly return from both investments was \$3600, find out how much she invested at 3%?

328) _____

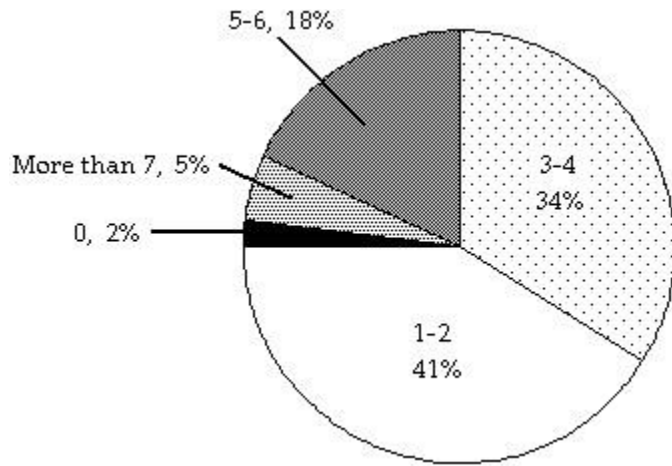
- A) \$15,000 B) \$45,000 C) \$135,000 D) \$20,000

329) If two planes leave an airport at the same time with one flying west at 520 miles per hour and the other flying east at 540 miles per hour, how long will it take them to be 3180 miles apart?

329) _____

- A) 3 hr B) 2 hr C) 4 hr D) 2.5 hr

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



- 330) If State University has approximately 28,000 students, about how many would you expect to consume 5-6 pizzas in a typical month? 330) _____
- A) 9520 students B) 5040 students C) 504 students D) 952 students

Solve. Round to one decimal place when necessary.

- 331) The number 90 is what percent of 48? 331) _____
- A) 1.9% B) 53.3% C) 187.5% D) 18.8%
- 332) Due to a lack of funding, the number of students enrolled at City College went from 9000 last year to 3000 this year. Find the percent decrease in enrollment. 332) _____
- A) 200% B) 33.3% C) 66.7% D) 300%

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

- 52) A
- 53) D
- 54) C
- 55) C
- 56) A
- 57) C
- 58) C
- 59) D
- 60) A
- 61) B
- 62) D
- 63) B
- 64) C
- 65) D
- 66) A
- 67) A
- 68) B
- 69) A
- 70) B
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- 73) C
- 74) D
- 75) D
- 76) B
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- 78) A
- 79) D
- 80) C
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- 82) D
- 83) A
- 84) C
- 85) B
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293) D
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295) B
296) A
297) B
298) D
299) B
300) B
301) D
302) D
303) B
304) D
305) C
306) D
307) A
308) B
309) A
310) D
311) C

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- 312) B
- 313) B
- 314) D
- 315) A
- 316) D
- 317) D
- 318) C
- 319) D
- 320) D
- 321) B
- 322) A
- 323) D
- 324) A
- 325) D
- 326) A
- 327) B
- 328) D
- 329) A
- 330) B
- 331) C
- 332) C