Exam

Name_____

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

Solve the equation.

1) $a - 3 = 1$ 1) _____
A) 2 B) -2 C) 4 D) -4

2) $a + 6 = 7$ 2) _____
A) 1 B) 13 C) -1 D) -13

3) $9 = s + 1$ 3) _____
A) -10 B) -8 C) 8 D) 10

4) $-30 = m - 13$ 4) _____
A) -43 B) 43 C) -17 D) 17

5) $m - 5 = 11$ 5) _____
A) -16 B) 16 C) -6 D) 6

6) $22 = -29 + x$ 6) _____
A) -7 B) -51 C) 7 D) 51

7) $a - 5.70 = 0$ 7) _____
A) 5.70 B) -4.70 C) -5.70 D) 4.70

8) $-17.2 = 19.5 + s$ 8) _____
A) 2.3 B) 36.7 C) -36.7 D) -2.3

9) $t + \frac{2}{7} = \frac{3}{7}$ 9) _____
A) 1 B) $\frac{1}{7}$ C) $\frac{2}{7}$ D) $\frac{5}{7}$

10) $x - \frac{1}{2} = -\frac{5}{14}$ 10) _____
A) $\frac{6}{7}$ B) $\frac{1}{7}$ C) $-\frac{1}{7}$ D) $-\frac{6}{7}$

11) $8a = -24$ 11) _____
A) 32 B) 1 C) -32 D) -3

12) $81 = -9k$ 12) _____
A) -90 B) -9 C) 1 D) 90

13) $-2x = -6$ 13) _____
A) 2 B) -4 C) 4 D) 3

14) $8b = -88$ 14) _____

A) 1 B) 96 C) -11 D) -96

15) $-38.4 = -6.4c$ 15) _____

A) 6.0 B) 32.0 C) -32.0 D) 2.0

16) $-\frac{1}{20}a = 0$ 16) _____

A) -20 B) 20 C) 0 D) 1

17) $-\frac{4}{7}t = -\frac{1}{9}$ 17) _____

A) $\frac{7}{36}$ B) $-\frac{7}{36}$ C) $\frac{36}{7}$ D) $-\frac{7}{9}$

18) $-5.6c = -22.4$ 18) _____

A) 2.0 B) 16.8 C) -16.8 D) 4.0

19) $\frac{1}{3}y = \frac{4}{5}$ 19) _____

A) $-\frac{12}{5}$ B) $-\frac{24}{5}$ C) $\frac{5}{12}$ D) $\frac{12}{5}$

Solve the problem.

20) A small farm field is a square measuring 200 ft on a side. What is the perimeter of the field? 20) _____

A) 400 ft B) 1600 ft C) 200 ft D) 800 ft

21) The area of a rectangular garden is to be 154 ft.^{2}. Find the length if the width must be 7 ft. (Use A = lw) 21) _____

A) 21 ft. B) 147 ft. C) 22 ft. D) 24 ft.

22) A box has a volume of 612 in.^{3}. The length is 6 in. and the width is 17 in. Find the height. (Use V = lwh) 22) _____

A) 6 in. B) 4 in. C) 7 in. D) 10 in.

23) If a salesman's salary is multiplied by 1.02, which corresponds to salary plus a 2% bonus, the result is $31,620. Find the salesman's current salary. 23) _____

A) $37,200 B) $31,000 C) $31,620 D) $620

24) One lap around a running track is 400 meters. How many laps will you run if you travel 9600 meters? 24) _____

A) 48 laps B) 96 laps C) 12 laps D) 24 laps

25) There are 4 quarts in 1 gallon. Find the number of quarts in 8 gallons. 25) _____

A) 32 quarts B) 16 quarts C) 4 quarts D) 2 quarts

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

Provide an appropriate response.

26) Your friend solves an equation as follows: 26) _____

$x - 20 = 29$
$x = 29 - 20$
$x = 9$

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

27) Your friend solves an equation as follows: 27) _____

$\frac{3}{8}x = 5$

$x = 5 \cdot \frac{3}{8}$

$x = \frac{15}{8}$

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

28) What is the first step to solve an equation in the form $b + x = a$? What is the solution of the equation? 28) _____

29) 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? 29) _____

30) What should you add to both sides of the equation to solve $n + 3 = -18$? 30) _____

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

31) What should you multiply on each side of the equation to solve $2x = -\frac{9}{7}$? 31) _____

A) 2 B) $\frac{1}{2}$ C) $-\frac{9}{7}$ D) $-\frac{7}{9}$

Determine whether the equation is linear. If it is linear, give values for a and b so that the equation can be written in the form $ax + b = 0$.

32) $10x + 8 = 28$ 32) _____

A) Yes; $a = 10, b = 36$
B) Yes; $a = 10, b = -20$
C) Yes; $a = 20, b = 10$
D) No

33) $2x - 3 = 0$ 33) _____

A) No
B) Yes; $a = 2, b = 3$
C) Yes; $a = -3, b = 2$
D) Yes; $a = 2, b = -3$

34) $7x^2 - 25 = 6$ 34) _____

A) Yes; a = 7, b = -19
B) Yes; a = 31, b = 7
C) Yes; a = 7, b = -31
D) No

35) $\frac{1}{4}x = 0$ 35) _____

A) No
B) Yes; a = 0, b = $\frac{1}{4}$
C) Yes; a = $\frac{1}{4}$, b = 0
D) Yes; a = 1, b = 4

36) $\frac{9}{x} + 16 = 4$ 36) _____

A) Yes; a = 9, b = 12
B) Yes; a = 9, b = 20
C) Yes; a = -12, b = 9
D) No

37) $2\sqrt{x} - 13 = 0$ 37) _____

A) Yes; a = 2, b = 13
B) Yes; a = 2, b = -13
C) No
D) Yes; a = -13, b = 2

38) $24.0x = 4.7$ 38) _____

A) Yes; a = 24.0, b = 4.7
B) No
C) Yes; a = -4.7, b = 24.0
D) Yes; a = 24.0, b = -4.7

39) $4(x - 7) = 0$ 39) _____

A) Yes; a = 4, b = -28
B) Yes; a = 4, b = -7
C) No
D) Yes; a = -28, b = 4

40) $|10x| + 8 = 21$ 40) _____

A) No
B) Yes; a = 10, b = -13
C) Yes; a = 10, b = 29
D) Yes; a = 13, b = 10

41) $6x = 8x^3$ 41) _____

A) Yes; a = 8, b = -6
B) No
C) Yes; a = 6, b = -8
D) Yes; a = 6, b = 8

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

Evaluate the expression for each value of x in the table. Then use the table to solve the equation.

42) $-9x + 5 = -31$ 42) _____

x	1	2	3	4	5
-9x + 5	-4				

43) $3 + (4x - 5) = -6$ 43) _____

x	-5	-4	-3	-2	-1
3 + (4x - 5)	-22				

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

Solve the equation.

44) $14 = 2x - 4$ 44) _____

A) 20 B) 16 C) 9 D) 11

45) $140 = 11x + 9x$ 45) _____

A) $\frac{1}{7}$ B) 160 C) 7 D) 120

46) $2r - 5 = 2 + 4r$ 46) _____

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

47) $3y - 8 + y = 7 + 2y - 3y$ 47) _____

A) $-\frac{1}{3}$ B) $-\frac{1}{5}$ C) $-\frac{1}{4}$ D) 3

48) $\frac{1}{2}a - \frac{1}{2} = -6$ 48) _____

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

49) $-3.7q = -22 - 1.5q$ 49) _____

A) 10 B) 6.4 C) 5.9 D) -24

50) $-5q + 1.5 = -25.7 - 1.6q$ 50) _____

A) 5.4 B) -31 C) 8 D) 5.8

51) $9x - (2x - 1) = 2$ 51) _____

A) $-\frac{1}{11}$ B) $\frac{1}{7}$ C) $\frac{1}{11}$ D) $-\frac{1}{7}$

52) $(y - 11) - (y + 10) = 4y$ 52) _____

A) $-\frac{1}{2}$ B) $-\frac{21}{2}$ C) $-\frac{21}{4}$ D) $-\frac{1}{4}$

53) $-4x + 3(-3x - 7) = -25 - 9x$ 53) _____

A) $\frac{23}{2}$ B) -1 C) 1 D) $\frac{23}{11}$

Determine whether the equation has no solution, one solution, or infinitely many solutions.

54) $14m + 8 = 2(5m + 10)$ 54) _____

A) Infinitely many solutions
B) One solution
C) No solutions

55) $36 = 7x - 6$ 55) _____

A) No solutions
B) One solution
C) Infinitely many solutions

56) $7x = 7x - 28$ 56) _____

A) One solution
B) Infinitely many solutions
C) No solutions

57) $7(x + 3) = 7x + 21$ 57) _____

A) No solutions
B) One solution
C) Infinitely many solutions

58) $8(x - 6) + (-3x) = 5(x - 6) + 3$ 58) _____

A) No solutions
B) Infinitely many solutions
C) One solution

59) $12(x - 2) = 2(6x - 3) - 18$ 59) _____

A) No solutions
B) Infinitely many solutions
C) One solution

60) $4x = 5(x + 3) - x$ 60) _____

A) No solutions
B) Infinitely many solutions
C) One solution

61) $7x - (13x - 11) = 42 - 6x$ 61) _____

A) Infinitely many solutions
B) One solution
C) No solutions

62) $16k - 31 = 4(4k - 10)$ 62) _____

A) No solutions
B) Infinitely many solutions
C) One solution

63) $4x + 5(x + 1) + 4 = 9 - 2x$ 63) _____

A) One solution
B) Infinitely many solutions
C) No solutions

Solve the problem.

64) Brand A soup contains 955 milligrams of sodium. Write a formula that computes the number of milligrams of sodium, S, in x cans of Brand A soup. 64) _____

A) $S = 955 + x$ B) $S = 955x$ C) $S = x - 955$ D) $S = 955$

65) The formula C = 23d + 25 describes the total cost of renting a truck, where C is the total cost and d is the number of days the truck is rented. How many days can the truck be rented for $117? 65) _____

A) 5 days B) 4 days C) 2 days D) 14 days

66) The temperature, t, in degrees Fahrenheit, of water being heated is $66 + \frac{1}{2}m$ where m is the number of minutes since heating began. How long will it take for the temperature of the water to reach 70 degrees Fahrenheit? 66) _____

A) 8 min B) 2 min C) 5 min D) 16 min

67) Yearly sales at a certain department store follow the model y = 85 - 13.254x where y is the total sales in thousands of dollars and x is the number of years after the store opened. How many years after the store's opening will the total sales for the year first be less than $20,000? 67) _____

A) 5 yr B) 8 yr C) 10 yr D) 863 yr

68) A repair company's charge for repairing a certain type of copy machine fits the model y = 47.38 + 0.617x where y is the amount charged in dollars and x is the number of minutes the repair person is on the job. How many minutes would it take for the cost of repair to reach $120? (Round to the nearest minute.) 68) _____

A) 118 min B) 187 min C) 12 min D) 271 min

69) When going more than 38 miles per hour, the gas mileage of a certain car fits the model y = 43.81 - 0.395x where x is the speed of the car in miles per hour and y is the miles per gallon of gasoline. Based on this model, at what speed will the car average 15 miles per gallon? (Round to nearest whole number.) 69) _____

A) 73 mph B) 48 mph C) 149 mph D) 98 mph

70) The temperature of water in a certain lake on a day in October can be determined by using the model y = 15.2 - 0.537x where x is the number of feet down from the surface of the lake and y is the Celsius temperature of the water at that depth. Based on this model, how deep in the lake is the water 11 degrees? (Round to the nearest foot.) 70) _____

A) 64 ft B) 8 ft C) 49 ft D) 26 ft

Provide an appropriate response.

71) 2x - 5 = 5 + 7x - 3 71) _____

Is this a linear equation?

A) Yes B) No

72) $-\frac{3}{x} = 83$ 72) _____

Is this a linear equation?

A) No B) Yes

73) $5x^2 - 7 = 3x$ 73) _____

Is this a linear equation?

A) No B) Yes

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

74) If one step in the solution of an equation is 2 = 55, what is the final solution of the equation? 74) _____

75) True or false? This pair of equations is equivalent. $2x - 5 = 5$ and $4x + 5 = 25$ 75) _____

76) True or false? The solution of the equation $7y - 6 = 7y + 3$ is 0. Explain. 76) _____

77) True or false? The solution of the equation $7(7s - 4) = 49s - 28$ is 1. Explain. 77) _____

78) Find all values of s that make this statement true: $8(8s - 6) = 64s - 48$. 78) _____

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

Translate the sentence to an equation using the variable x. Then solve the equation.

79) The sum of a number and 5 is 17. 79) _____

A) $x + 5 = 17; 12$ B) $5x = 17; \frac{5}{17}$ C) $x + 17 = 5; -12$ D) $x = 5 + 17; 22$

80) A number minus 4 equals 2. 80) _____

A) $x = 4 - 2; 2$ B) $x = 2 - 4; -2$ C) $4 - x = 2; 2$ D) $x - 4 = 2; 6$

81) 5 times a number equals 4 less than 6 times the number. 81) _____

A) $5x = 4 - 6; -\frac{2}{5}$ B) $5x = 4 - 6x; \frac{4}{11}$ C) $5x - 4 = 6x; -4$ D) $5x = 6x - 4; 4$

82) Four times a number added to 9 times the number equals 52. 82) _____

A) $4x(9 + x) = 52; -4$ B) $9x - 4x = 52; 4$

C) $9x + 4x = 52; 4$ D) $4(x + 9) = 52x; -4$

83) When 4 times a number is subtracted from 7 times the number, the result is 21. 83) _____

A) $7x - 4x = 21; 7$ B) $4x(7 - x) = 21; -7$

C) $4x + 7x = 21; 3$ D) $4(x - 7) = 21x; 3$

84) If 5 times a number is added to -6, the result is equal to 11 times the number. 84) _____

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

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

85) When $\frac{1}{4}$ of a number is added to 12, the result is 26. 85) _____

A) $12 + \frac{1}{4}x = 26; 56$ B) $\frac{1}{4} + x = 26; 26$

C) $\frac{1}{4}x - 12 = 26; 152$ D) $26 + \frac{1}{4}x = 12; 56$

86) When 50% of a number is subtracted from 70, the result is 2 less than the number. 86) _____

A) $70 + 0.5x = x - 2; 144$ B) $0.5x - 70 = x - 2; -136$

C) $70 - 50 = x - 2; 22$ D) $70 - 0.5x = x - 2; 48$

Find the number or numbers.

87) The sum of two consecutive even integers is 74. Find the larger number. 87) _____

A) 46 B) 38 C) 34 D) 32

88) The sum of the page numbers on the facing pages of a book is 361. Find the larger page number. 88) _____

A) 191 B) 179 C) 181 D) 176

89) The difference between two positive integers is 42. One integer is three times as great as the other. Find the integers. 89) _____

A) 42 and 63 B) 21 and 63 C) 21 and 42 D) 63 and 105

90) If -11 is added to a number and the sum is doubled, the result is -14 less than the number. Find the number. 90) _____

A) -3 B) 36 C) 8 D) -8

91) The sum of twice a number and 6 less than the number is the same as the difference between -26 and the number. What is the number? 91) _____

A) -6 B) -4 C) -10 D) -5

92) The sum of two consecutive integers is -363. Find the larger integer. 92) _____

A) -182 B) -181 C) -180 D) -183

93) The sum of three consecutive integers is 432. Find the integers. 93) _____

A) 143, 144, 145 B) 144, 145, 146 C) 142, 143, 144 D) 142, 144, 146

94) The sum of three consecutive odd integers is 243. Find the integers. 94) _____

A) 74, 75, 76 B) 81, 83, 85 C) 79, 81, 83 D) 83, 85, 87

95) If three times the smaller of two consecutive integers is added to four times the larger, the result is 130. Find the smaller integer. 95) _____

A) 19 B) 17 C) 54 D) 18

96) 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. 96) _____

A) 29 B) 31 C) 58 D) 27

Write the percent as a fraction in simplest form.

97) 62.5% 97) _____

A) $\frac{5}{8}$ B) $\frac{5}{16}$ C) $\frac{5}{4}$ D) $\frac{25}{4}$

98) $41\frac{2}{3}\%$ 98) _____

A) $\frac{5}{6}$ B) $\frac{25}{6}$ C) $\frac{5}{24}$ D) $\frac{5}{12}$

99) $285\frac{5}{7}\%$ 99) _____

A) $28\frac{4}{7}$ B) $2\frac{6}{7}$ C) $5\frac{5}{7}$ D) $1\frac{3}{7}$

100) 0.8% 100) _____

A) $\frac{1}{125}$ B) $\frac{2}{25}$ C) $\frac{2}{125}$ D) $\frac{1}{250}$

101) $\frac{1}{4}$% 101) _____

A) $\frac{1}{800}$ B) $\frac{1}{200}$ C) $\frac{1}{40}$ D) $\frac{1}{400}$

102) 62.5% 102) _____

A) $\frac{5}{9}$ B) $\frac{25}{4}$ C) $\frac{5}{11}$ D) $\frac{5}{8}$

103) 6.45% 103) _____

A) $\frac{129}{2}$ B) $\frac{129}{2000}$ C) $\frac{129}{20}$ D) $\frac{129}{200}$

Write the percent as a decimal.

104) 55% 104) _____

A) 0.44 B) 0.55 C) 5.5 D) 0.055

105) 90% 105) _____

A) 0.79 B) 9 C) 0.09 D) 0.9

106) 90.4% 106) _____

A) 0.904 B) 0.0904 C) 0.794 D) 9.04

107) 600% 107) _____

A) 60 B) 0.6 C) 6 D) 6.01

108) 770% 108) _____

A) 77 B) 7.71 C) 7.7 D) 0.77

109) 776% 109) _____

A) 7.76 B) 77.6 C) 0.776 D) 7.77

110) 0.5% 110) _____

A) 0.5 B) 0.005 C) 0.006 D) 0.05

111) 34.45% 111) _____

A) 0.3345 B) 0.3445 C) 0.03445 D) 3.445

112) $66\frac{2}{3}$% 112) _____

A) 0.6623 B) $66.\overline{6}$ C) $0.\overline{6}$ D) $6.\overline{6}$

113) $14\frac{1}{9}\%$ 113) _____

A) 0.141 B) $0.14\overline{1}$ C) $14.\overline{1}$ D) $0.\overline{141}$

Write as a percent.

114) 0.98 114) _____

A) 0.098% B) 98% C) 9.8% D) 980%

115) 0.3 115) _____

A) 0.03% B) 0.3% C) 300% D) 30%

116) 0.962 116) _____

A) 0.0962% B) 96.2% C) 962% D) 0.962%

117) 0.762 117) _____

A) 0.762% B) 762% C) 0.0762% D) 76.2%

118) 8.7 118) _____

A) 0.87% B) 870% C) 87% D) 0.0087%

119) 0.00962 119) _____

A) 0.000962% B) 0.481% C) 0.962% D) 0.0962%

120) 1 120) _____

A) 0.1% B) 50% C) 100% D) 0.01%

121) 0.00027 121) _____

A) 0.000027% B) 0.027% C) 0.0027% D) 0.27%

122) 0.023 122) _____

A) 23% B) 0.23% C) 2.3% D) 0.0023%

123) 0.1545 123) _____

A) 0.01545% B) 1.545% C) 15.45% D) 154.5%

Write as a percent. Round your answer to the nearest tenth, if necessary.

124) $\frac{43}{100}$ 124) _____

A) 0.43% B) 4.3% C) 43% D) 430%

125) $\frac{3}{10}$ 125) _____

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

126) $\frac{1}{9}$ 126) _____

A) 12.3% B) 1.1% C) 90% D) 11.1%

127) $\frac{1}{3}$ 127) _____

A) 3.3% B) 33.3% C) 120% D) 27.8%

128) $\frac{1}{2}$ 128) _____

A) 5% B) 25% C) 1000% D) 50%

129) $\frac{9}{17}$ 129) _____

A) 170% B) 52.9% C) 5.3% D) 31.1%

130) $\frac{14}{5}$ 130) _____

A) 280% B) 28% C) 50% D) 560%

Solve.

131) An insurance fund invests $72,800 in real estate and earns 11% per year on the investment. How much money is earned per year? 131) _____

A) $661,818 B) $80,080 C) $8008 D) $66,182

132) A chemical solution contains 3% potassium. How much potassium is in 4 mL of solution? 132) _____

A) 1.2 mL B) 133.333 mL C) 13.333 mL D) 0.12 mL

133) An appliance store had monthly sales of $106,400 and spent 2% of it on promotions. How much was spent on promotions? 133) _____

A) $2128 B) $532,000 C) $5,320,000 D) $21,280

134) The First National Bank pays $4\frac{2}{5}$% interest per year on money market accounts. What is the annual income on a money market account of $111,000? Round your answer to the nearest dollar. 134) _____

A) $277,500 B) $2,775,000 C) $4884 D) $48,840

135) A decorator has 62 clients, 50% of which are businesses. Find the number of business clients. 135) _____

A) 31,000 clients B) 310 clients C) 3100 clients D) 31 clients

136) 47.5% of the students at a certain college are men. If the total number of students at the college is 1400, how many female students are there? 136) _____

A) 700 students B) 665 students C) 755 students D) 735 students

137) If Gloria received a 3 percent raise and is now making $23,690 a year, what was her salary before the raise? 137) _____

A) $21,690 B) $22,690 C) $23,000 D) $24,000

138) An investor bought 100 shares of stock. The value of the shares went up 3% and then he sold them. How much did the investor pay for the 100 shares if he sold them for $1545? 138) _____

A) $1550 B) $1591 C) $1495 D) $1500

139) Alex and Juana went on a 100-mile canoe trip with their class. On the first day they traveled 24 miles. What percent of the total distance did they canoe? 139) _____

A) 24% B) 400% C) 0.24% D) 4%

140) Students at Maple School earned $328 selling candles. They want to accumulate $2000 for a club trip. What percent of their goal has been reached? 140) _____

A) 60% B) 6% C) 0.164% D) 16.4%

Use the formula d = rt to find the value of the missing variable.

141) d = 350 miles, r = 70 mph 141) _____

A) t = 5 hr B) t = 4 hr C) t = 6 hr D) t = $\frac{1}{5}$ hr

142) d = 1900 feet, r = 10 feet per second 142) _____

A) t = 190 sec B) t = 19 sec C) t = 19,000 sec D) t = $\frac{1}{190}$ sec

143) t = 230 sec, r = 10 feet per second 143) _____

A) d= 23,000 ft B) d = 23 ft C) d = $\frac{1}{23}$ ft D) d = 2300 ft

144) r = 13.4 mph, t = 5 hours 144) _____

A) d = 80.4 mi B) d = 67 mi C) d = 13.4 mi D) d = 2.7 mi

145) r = 22 feet per minute, t = 5 minutes 145) _____

A) d = 110 ft B) d = 0.2 ft C) d = 17 ft D) d = 4.4 ft

146) d = 240 miles, r = 60 mph 146) _____

A) t = 5 hr B) t = 144 hr C) t = 30 hr D) t = 4 hr

147) d = 325 miles, t = 5 days 147) _____

A) r = 70 mi/day B) r = 320 mi/day C) r = 65 mi/day D) r = 62 mi/day

148) d = 21 miles, t = 6 hours (Round to the nearest tenth when necessary.) 148) _____

A) r = 0.3 mph B) r = 15 mph C) r = 126 mph D) r = 3.5 mph

Solve the problem.

149) Jay drove 292 kilometers at the average rate of 73 kilometers per hour. How long did the trip take? 149) _____

A) $\frac{1}{4}$ hr B) 5 hr C) 4 hr D) 3 hr

150) Janet drove 325 kilometers and the trip took 5 hours. How fast was Janet traveling? 150) _____

A) 65 km/hr B) $\frac{1}{65}$ km/hr C) 1625 km/hr D) 66 km/hr

151) Jill is 18 kilometers away from Joe. Both begin to walk toward each other at the same time. Jill walks at 2 km/hr. They meet in 4 hours. How fast is Joe walking? 151) _____

A) 6.5 km/hr B) 10 km/hr C) 2.25 km/hr D) 2.5 km/hr

152) From a point on a straight road, two cars are driven in opposite directions, one at 70 miles per hour and the other at 63 miles per hour. In how many hours will they be 399 miles apart? 152) _____

A) 2 hours B) 3 hours
C) Not enough information D) 4 hours

153) From a point on a straight road, John and Fred ride bicycles in opposite directions. John rides 7 miles per hour and Fred rides 6 miles per hour. In how many hours will they be 52 miles apart? 153) _____

A) 3 hours B) Not enough information
C) 4 hours D) 5 hours

154) From a point on a river, two boats are driven in opposite directions, one at 7 miles per hour and the other at 8 miles per hour. In how many hours will they be 45 miles apart? 154) _____

A) 5 hr B) 4 hr C) 1 hr D) 3 hr

155) A car traveling 61 miles per hour passes a bus traveling 54 in the same direction on the highway. If they maintain their speeds, how long will it take them to be 10.5 miles apart? 155) _____

A) 2 hr. B) 3 hr. C) 2.5 hr. D) 1.5 hr.

156) On her way to a holiday weekend, Nancy drove $1\frac{1}{2}$ hours in rush-hour traffic. When traffic eased up, she was able to increase her speed by 42 miles per hour and drove another $4\frac{1}{2}$ hours. If the entire trip was 321 miles, how fast did she drive in rush-hour traffic? 156) _____

A) $23\frac{1}{2}$ mph B) 24 mph C) 23 mph D) 22 mph

157) A solution contains 4% salt. How much water should be added to 72 ounces of this solution to make a 1.2% solution? 157) _____

A) 168 oz B) 178 oz C) 166 oz D) 170 oz

158) How many liters of a 20% alcohol solution must be mixed with 20 liters of a 70% solution to get a 40% solution? 158) _____

A) 50 L B) 3 L C) 30 L D) 5 L

159) It is necessary to have a 40% antifreeze solution in the radiator of a certain car. The radiator now has 50 liters of 20% solution. How many liters of this should be drained and replaced with 100% antifreeze to get the desired strength? 159) _____

A) 12.5 L B) 16.7 L C) 20 L D) 25 L

160) How much pure acid should be mixed with 3 gallons of a 50% acid solution in order to get an 80% acid solution? 160) _____

A) 4.5 gal B) 7.5 gal C) 1.5 gal D) 12 gal

161) A chemist needs 200 milliliters of a 47% solution but has only 20% and 80% solutions available. Find how many milliliters of each that should be mixed to get the desired solution. 161) _____

A) 110 mL of 20%; 90 mL of 80% B) 90 mL of 20%; 110 mL of 80%
C) 80 mL of 20%; 120 mL of 80% D) 120 mL of 20%; 80 mL of 80%

162) A college student earned $5600 during summer vacation working as a waiter in a popular restaurant. The student invested part of the money at 9% and the rest at 6%. If the student received a total of $450 in interest at the end of the year, how much was invested at 9%? 162) _____

A) $2800 B) $933 C) $3800 D) $1800

163) Paul invested twice as much in an account paying 5% interest as he did in an account paying 4% interest. If the total interest paid was $350, how much did he invest in each account? 163) _____

A) $5000 at 5%, $2500 at 4% B) $2500 at 5%, $5000 at 4%
C) $5000 at 5%, $3000 at 4% D) $50 at 5%, $25 at 4%

164) Two bank loans, one for $6000 and the other for $8000, cost a total of $995 in interest for one year. The $6000 loan has an interest rate 2% higher than the interest rate for the $8000 loan. Find the interest rate for each loan. 164) _____

A) 7.5% for $6000 loan; 5.5% for $8000 loan
B) 8.75% for $6000 loan; 6.75% for $8000 loan
C) 8.25% for $6000 loan; 6.25% for $8000 loan
D) 7.75% for $6000 loan; 5.75% for $8000 loan

165) Roberto invested some money at 7%, and then invested $5000 more than twice this amount at 12%. His total annual income from the two investments was $4010. How much was invested at 12%? 165) _____

A) $15,000 B) $27,000 C) $2700 D) $22,000

Provide an appropriate response.

166) Which two of the following equations do not correctly state the relationship between distance, rate and time? 166) _____

(a) $\frac{d}{t} = r$ (b) $dr = t$

(c) $\frac{r}{t} = d$ (d) $\frac{d}{r} = t$

A) (b) & (c) B) (b) & (d) C) (a) & (c) D) (a) & (d)

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

167) Which of the following would not be a reasonable answer in an applied problem that requires finding the number of cars parked in a parking lot? 167) _____

(i) 6.5 (ii) 33 (iii) 3 (iv) 175

168) Express three consecutive integers, all in terms of x, if x is the largest integer. 168) _____

169) One number is twice another. If the larger number is m, how do you express the other number in terms of m? 169) _____

170) Consider the following: Henry drove his new car for y minutes at x mph. Since d = rt, Henry drove his new car a total of (xy) miles. Is this correct? Explain. 170) _____

171) Consider the following claim made by an investment broker: This product earns an APR of 17%, so for every dollar you invest, you will earn $17 after one year. Is the investment broker correct? Explain. 171) _____

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

Solve the problem.

172) What is the area of a square with side 2.6 centimeters? 172) _____

A) 6.76 cm^2 B) 17 cm^2 C) 5.2 cm^2 D) 27.04 cm^2

173) Find the area of a triangle with height 9 meters and base 5 meters. 173) _____

A) 22.5 m^2 B) 7 m^2 C) 45 m^2 D) 90 m^2

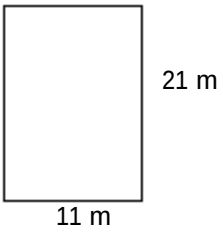
174) The area of a trapezoid is 63 square feet. If the bases are 6 feet and 12 feet, find the altitude of the trapezoid. 174) _____

A) 14 ft B) 7 ft C) 4 ft D) 1.5 ft

175) The area of a triangle with base b and height h is given by the formula $A = \frac{1}{2}bh$. Find the area of a triangle with base 3 meters and height 16 meters. 175) _____

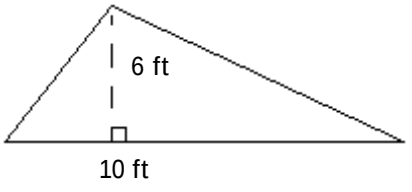
A) 19 m^2 B) 24 m^2 C) 48 m^2 D) 19.5 m^2

176) Find the area of the rectangle. 176) _____



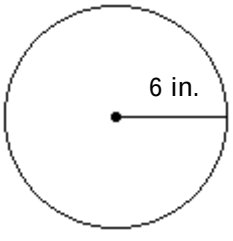
A) 231 m^2 B) 121 m^2 C) 64 m^2 D) 441 m^2

177) Find the area of the triangle. 177) _____



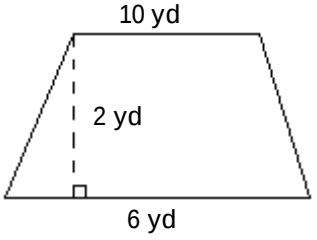
A) 60 ft^2 B) 30 ft^2 C) 8 ft^2 D) 15 ft^2

178) Find the area of the circle. 178) _____



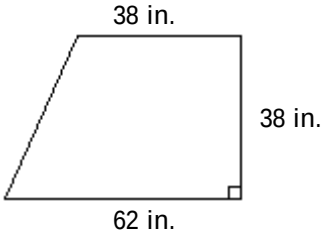
A) 6π $in.^2$ B) 72π $in.^2$ C) 36π $in.^2$ D) 12π $in.^2$

179) Find the area of the trapezoid. 179) _____



A) 32 yd^2 B) 16 yd^2 C) 8 yd^2 D) 60 yd^2

180) Find the area of the trapezoid. 180) _____



A) 3366 $in.^2$ B) 1900 $in.^2$ C) 1178 $in.^2$ D) 50 $in.^2$

Solve.

181) The second angle of a triangle is 3 times as large as the first. The third angle is 55° more than the first. Find the measure of the smallest angle. 181) _____

A) 125° B) 35° C) 25° D) 55°

182) The second angle of a triangle is 4 times as large as the first. The third angle is 170° more than the sum of the other two angles. Find the measure of the second angle. 182) _____

A) 1° B) 5° C) $\frac{1}{4}$° D) 4°

183) The sum of the measures of the angles in any triangle is 180 degrees. In triangle ABC, angles A and B have the same measure, while angle C is 135 degrees larger than each of the other two angles. Find the measure of angle C. 183) _____

A) 30° B) 150° C) 15° D) 165°

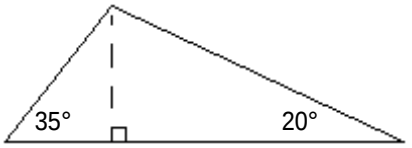
184) The sum of the measures of the angles of any triangle is 180°. In triangle ABC, angles A and B have the same measure, while the measure of angle C is 135° larger than each of A and B. What are the measures of the three angles? 184) _____

A) A and C: 130°; B: 25° B) A and B: 15°; C: 150°
C) A and B: 150°; C: 15° D) A and B: 25°; C: 130°

185) Two angles of a triangle are 50° and 100°. What is the measure of the third angle? 185) _____

A) 210° B) -60° C) 150° D) 30°

186) What is the measure of the third angle? 186) _____



A) 305° B) 70° C) 125° D) 55°

187) The angle measures in a triangle are 5x, 3x, and 4x. Find the value of x. 187) _____

A) $\frac{15}{2}°$ B) 30° C) 168° D) 15°

Solve the problem.

188) A circle has a circumference of 56π m. Find the radius of the circle. 188) _____

A) 56 m B) 9 m C) 14 m D) 28 m

189) The area of a circle with radius r is given by the formula $A = \pi r^2$. Find the area of a circle with radius 3 centimeters. Use 3.14 for π. 189) _____

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

190) A wicker basket has a circular rim with a diameter of 11 in. How many inches of ribbon are needed to go once around the rim? Use 3.14 for π. Round the answer to the nearest hundredth if necessary. 190) _____

A) 34.54 in. B) 121 in. C) 69.08 in. D) 32.54 in.

191) The diameter of a circle is 15 ft. Find its area. 191) _____

A) 225π ft^2 B) $\frac{225}{4}\pi$ ft^2 C) 15π ft^2 D) 30π ft^2

192) The radius of a circle is $\frac{5}{3}$ in. Find its circumference. 192) _____

A) $\frac{10}{3}\pi$ in B) $\frac{5}{3}\pi$ in C) $\frac{100}{9}\pi$ in D) $\frac{25}{9}\pi$ in

193) The circumference of a circle is 8π ft. Find its radius. 193) _____

A) 16 ft B) 8 ft C) 4 ft D) 4π ft

194) The circumference of a circle is 11π yd. Find its area. 194) _____

A) 11π yd^2 B) 22π yd^2 C) $\frac{11}{2}\pi$ yd^2 D) $\frac{121}{4}\pi$ yd^2

195) Find the surface area of a cylinder with a radius of 5 cm and a height of 10 cm. Use 3.14 for π. 195) _____

A) 314 cm^2 B) 345.4 cm^2 C) 471 cm^2 D) 1884 cm^2

196) A baking pan measures 13 inches long, 5 inches wide, and 2 inches deep. What is the volume of the pan? 196) _____

A) 65 $in.^3$ B) 36 $in.^3$ C) 130 $in.^3$ D) 20 $in.^3$

197) A circular hole is filled with concrete to make a footing for a load-bearing pier. The hole measures 17 inches across and requires 1.9 bags of concrete in order to fill it to ground level. What is the depth of the hole? Round your answer to the nearest inch. (One bag of concrete, when mixed with the appropriate amount of water, makes 1800 $in.^3$ of material.) 197) _____

A) 21 in. B) 19 in. C) 12 in. D) 15 in.

198) A cylindrical flower vase is 9 in. across the top and about 12 in. high. How many cubic inches of water could it hold? Use 3.14 for π. Round the answer to the nearest tenth if necessary. 198) _____

A) 763.0 $in.^3$ B) 678.2 $in.^3$ C) 1526.0 $in.^3$ D) 3052.1 $in.^3$

199) The foundation for a cylindrical fountain is a cylinder 13 m in diameter and 5 m high. How many cubic m of concrete are needed to build the foundation? Use 3.14 for π. Round the answer to the nearest tenth if necessary. 199) _____

A) 2653.3 m^3 B) 663.3 m^3 C) 408.2 m^3 D) 1326.7 m^3

200) Find the surface area of a box with length 4 feet, width 5 feet, and height 2 feet. 200) _____

A) 40 ft^2 B) 38 ft^2 C) 76 ft^2 D) 80 ft^2

201) Find the volume of a box with length $\frac{1}{2}$ in, width $\frac{1}{2}$ in, and height 1 in. 201) _____

A) $\frac{3}{4}$ $in.^3$ B) $\frac{5}{4}$ $in.^3$ C) $\frac{1}{2}$ $in.^3$ D) $\frac{1}{4}$ $in.^3$

202) Find the surface area of a box with length 0.9 in, width 2.2 in, and height 3.8 in. 202) _____

A) 27.52 ft^2 B) 7.524 ft^2 C) 13.76 ft^2 D) 15.048 ft^2

Solve the formula for the specified variable.

203) $A = \frac{1}{2}bh$ for h 203) _____

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

204) $S = 2\pi rh + 2\pi r^2$ for h 204) _____

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

205) $V = \frac{1}{3}Bh$ for h 205) _____

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

206) $P = s_1 + s_2 + s_3$ for s_3 206) _____

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

207) $F = \frac{9}{5}C + 32$ for C 207) _____

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

208) $A = \frac{1}{2}h(b_1 + b_2)$ for b_1 208) _____

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

209) $d = rt$ for r 209) _____

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

210) $P = 2L + 2W$ for L 210) _____

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

211) $A = P(1 + nr)$ for r 211) _____

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

Solve the problem.

212) Find the corresponding Celsius temperature for a temperature of 297°F. Round to the nearest tenth, if necessary. 212) _____

A) 566.6°C B) 147.2°C C) 161.4°C D) 477°C

213) Find the corresponding Fahrenheit temperature for a temperature of 78°C. Round to the nearest tenth, if necessary. 213) _____

A) 25.6°F B) 172.4°F C) 198°F D) 61.1°F

214) When the temperature is 47°F, what is the temperature in degrees Celsius? Round your answer to the nearest tenth if necessary. 214) _____

A) 5.9°C B) 116.6°C C) 8.3°C D) 52.6°C

215) What is the perimeter of a rectangle of length 10 ft and width 15 ft? 215) _____

A) 25 ft B) 35 ft C) 100 ft D) 50 ft

216) A rectangular Persian carpet has a perimeter of 180 inches. The length of the carpet is 24 inches more than the width. What are the dimensions of the carpet? 216) _____

A) 57 inches by 81 inches B) 33 inches by 57 inches

C) 78 inches by 102 inches D) 66 inches by 90 inches

217) A square plywood platform has a perimeter which is 7 times the length of a side, decreased by 21. Find the length of a side. 217) _____

A) 7 B) 3 C) 1 D) 10

218) A pie-shaped (triangular) lake-front lot has a perimeter of 1000 feet. One side is 300 feet longer than the shortest side, while the third side is 400 feet longer than the shortest side. Find the lengths of all three sides. 218) _____

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

219) Find the length of a rectangular lot with a perimeter of 114 meters if the length is 5 meters more than the width. (P = 2L + 2W) 219) _____

A) 62 m B) 31 m C) 57 m D) 26 m

220) Find the grade point average (GPA) of a student with 12 credits with a grade of A, 9 credits with a grade of B, 27 credits with a grade of C, 24 credits with a grade of D, and 28 credits with a grade of F. 220) _____

A) 2.13 B) 1.53 C) 1.69 D) 1.33

221) Find the grade point average (GPA) of a student with 28 credits with a grade of A, 24 credits with a grade of B, 8 credits with a grade of C, 2 credits with a grade of D, and 2 credits with a grade of F. 221) _____

A) 2.83 B) 3.11 C) 2.96 D) 3.16

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

Provide an appropriate response.

222) Suppose the formula $A = 2\pi rh + 2\pi r^2$ is solved for r with the following result: $r = \frac{A}{2\pi h + 2\pi r}$. Is this an acceptable solution? Explain. 222) _____

223) Suppose the formula $s = \frac{1}{2}gt^2 + v_o t$ is solved for t with the following result: $t = \frac{2s}{gt + 2v_o}$. Is this an acceptable solution? Explain. 223) _____

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

224) Which of the following is not a correct answer when the formula $A = \frac{1}{2}h(b + B)$ is solved for b? 224) _____

A) $\frac{A - \frac{1}{2}Bh}{\frac{1}{2}h}$ B) $\frac{2A - B}{h}$ C) $\frac{2A}{h} - B$ D) $\frac{2A - Bh}{h}$

225) Which of the following is not a correct answer when the formula $V = \frac{1}{3}\pi r^2 h$ is solved for h? 225) _____

A) $\frac{3V}{\pi r^2}$ B) $\frac{1}{3}\left(\frac{V}{\pi r^2}\right)$ C) $3\left(\frac{V}{\pi r^2}\right)$ D) $\frac{V}{\frac{1}{3}\pi r^2}$

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

226) The volume of a rectangular solid is to be 108 cubic units. Give two sets of possible dimensions for the solid. 226) _____

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

227) In order to purchase fence for a garden, would you need to use perimeter or area to decide how much to buy? 227) _____

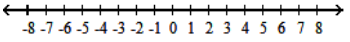
A) Perimeter B) Area

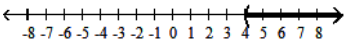
228) In order to purchase paint for a ceiling, would you need to use perimeter or area to decide how much to buy? 228) _____

A) Perimeter B) Area

Graph the inequality.

229) $x > 4$ 229) _____



A)


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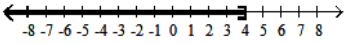

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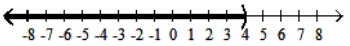

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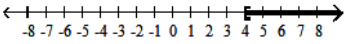
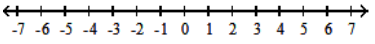


230) $x < -7$ 230) _____



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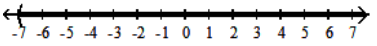

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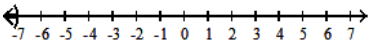

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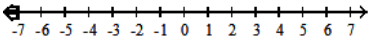
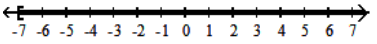
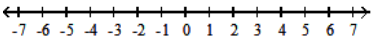
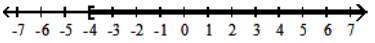
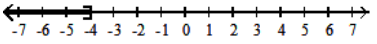


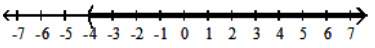
D)


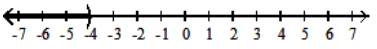
231) $x \geq -4$ 231) _____



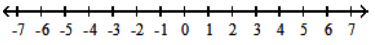
A) 

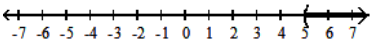
B) 

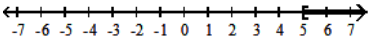
C) 

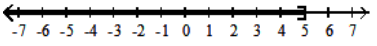
D) 

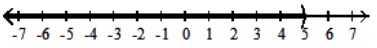
232) $x \leq 5$ 232) _____



A) 

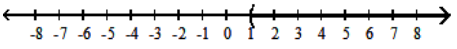
B) 

C) 

D) 

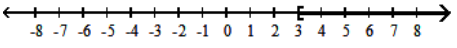
Express the set of real numbers graphed on the number line using an inequality.

233) 233) _____



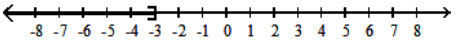
A) $x > 1$ B) $x < 1$ C) $x \leq 1$ D) $x \geq 1$

234) 234) _____

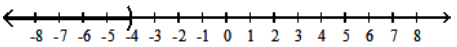


A) $x \geq 3$ B) $x < 3$ C) $x \leq 3$ D) $x > 3$

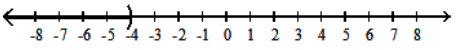
235) 235) _____



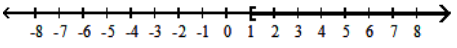
A) $x > -3$ B) $x \geq -3$ C) $x < -3$ D) $x \leq -3$

236)  236) _____

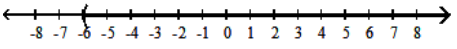
A) $x \geq -4$ B) $x < -4$ C) $x \leq -4$ D) $x > -4$

237)  237) _____

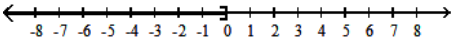
A) $x \geq -4$ B) $x > -4$ C) $x \leq -4$ D) $x < -4$

238)  238) _____

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

239)  239) _____

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

240)  240) _____

A) $x \leq 0$ B) $x > 0$ C) $x \geq 0$ D) $x < 0$

Write the solution set to the inequality in interval notation.

241) $x \geq 5$ 241) _____

A) $[5, \infty)$ B) $(-\infty, 5)$ C) $(5, \infty)$ D) $(-\infty, 5]$

242) $x > 10$ 242) _____

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

243) $x > -7$ 243) _____

A) $[-7, \infty)$ B) $(-\infty, -7]$ C) $(-7, \infty)$ D) $(-\infty, -7)$

244) $x \geq -10$ 244) _____

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

245) $x < 9$ 245) _____

A) $(-\infty, 9]$ B) $(9, \infty)$ C) $(-\infty, 9)$ D) $[9, \infty)$

246) $x \leq 18$ 246) _____

A) $[18, \infty)$ B) $(18, \infty)$ C) $(-\infty, 18]$ D) $(-\infty, 18)$

247) $x \leq -3$ 247) _____

A) $(-3, \infty)$ B) $(-\infty, -3]$ C) $[-3, \infty)$ D) $(-\infty, -3)$

248) $x < -19$ 248) _____

A) $[-19, \infty)$ B) $(-\infty, -19)$ C) $(-19, \infty)$ D) $(-\infty, -19]$

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

249) $5 + x \le 7, x = 2$ 249) _____

A) Yes B) No

250) $-4x \ge 10, x = \frac{9}{2}$ 250) _____

A) Yes B) No

251) $7x + 8 > 29, x = 8$ 251) _____

A) Yes B) No

252) $6(x - 4) \ge 6 - 9(x - 8), x = -3$ 252) _____

A) No B) Yes

253) $-(4 - x) \ge -2(x + 3) - 1, x = 8$ 253) _____

A) No B) Yes

254) $\frac{2}{5}x - \frac{1}{3} \le x + \frac{1}{10}, x = \frac{7}{10}$ 254) _____

A) Yes B) No

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

Complete the table. Then use the table to solve the inequality.

255) $2x + 4 \ge 18$ 255) _____

x	5	6	7	8	9
$2x + 4$	14				

256) $-3x + 5 > 2$ 256) _____

x	-2	-1	0	1	2
$-3x + 5$	11				

257) $-2x + 7 \le 3$ 257) _____

x	1	2	3	4	5
$-2x + 7$	5				

258) $4 + x < 3x + 2$ 258) _____

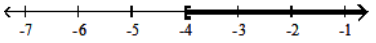
x	-1	0	1	2	3
$4 + x$	3				
$3x + 2$	-1				

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

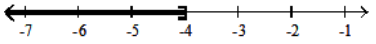
Solve and graph. Write the answer in set-builder notation.

259) $a + 2 < -2$ 259) _____

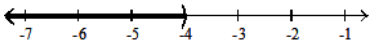
A) $\{a \mid a \geq -4\}$



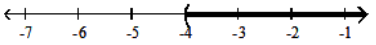
B) $\{a \mid a \leq -4\}$



C) $\{a \mid a < -4\}$

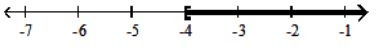


D) $\{a \mid a > -4\}$

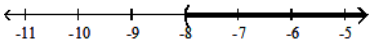


260) $-11n + 2 > -12n - 6$ 260) _____

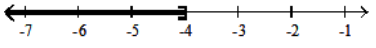
A) $\{n \mid n \geq -4\}$



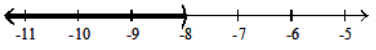
B) $\{n \mid n > -8\}$



C) $\{n \mid n \leq -4\}$

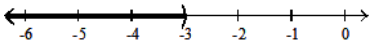


D) $\{n \mid n < -8\}$

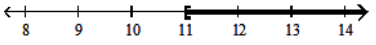


261) $-3t - 9 \geq -4t + 2$ 261) _____

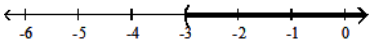
A) {t| t < - 3}



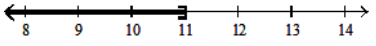
B) {t| t ≥ 11}



C) {t| t > - 3}

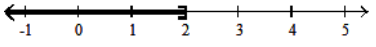


D) {t| t ≤ 11}

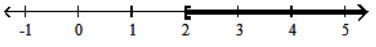


262) $f + 3 < 5$ 262) _____

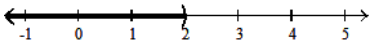
A) {f| f ≤ 2}



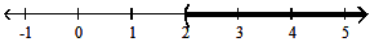
B) {f| f ≥ 2}



C) {f| f < 2}

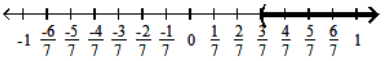


D) {f| f > 2}

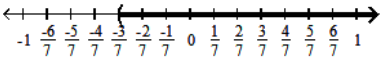


263) $x - \frac{1}{7} > -\frac{4}{7}$ 263) _____

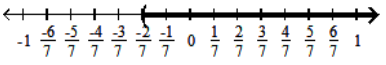
A) $\left\{x \mid x > \frac{3}{7}\right\}$



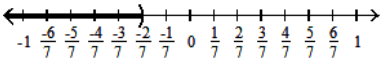
B) $\left\{x \mid x > -\frac{3}{7}\right\}$



C) $\left\{x \mid x > -\frac{3}{7}\right\}$

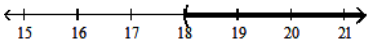


D) $\left\{x \mid x < -\frac{2}{7}\right\}$

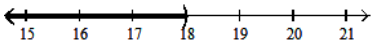


264) $\frac{k}{6} \geq 3$ 264) _____

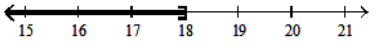
A) {k | k > 18}



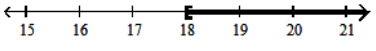
B) {k | k < 18}



C) {k | k ≤ 18}

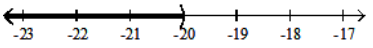


D) {k | k ≥ 18}

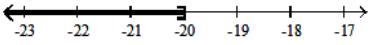


265) $-4 < \frac{k}{5}$ 265) _____

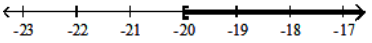
A) {k | k < -20}



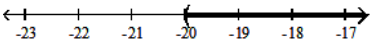
B) {k | k ≤ -20}



C) {k | k ≥ -20}

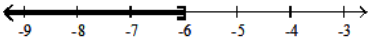


D) {k | k > -20}

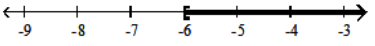


266) $-2 \geq \frac{n}{3}$ 266) _____

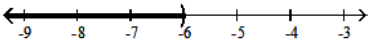
A) {n | n ≤ -6}



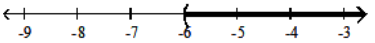
B) {n | n ≥ -6}



C) {n | n < -6}

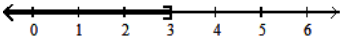


D) {n | n > -6}

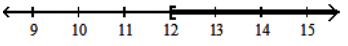


267) $6x \geq 18$ 267) _____

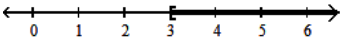
A) {x | x > 3}



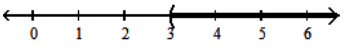
B) {x | x ≥ 12}



C) {x | x ≥ 3}

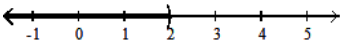


D) {x | x > 3}

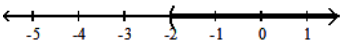


268) $-2x > 4$ 268) _____

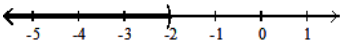
A) $\{x \mid x < 2\}$



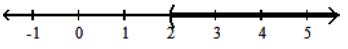
B) $\{x \mid x > -2\}$



C) $\{x \mid x < -2\}$



D) $\{x \mid x > 2\}$



Solve the inequality. Write the answer in set-builder notation.

269) $-1 - 5a + 7 \geq -6a - 4$ 269) _____

A) $\{a \mid a > -5\}$ B) $\{a \mid a \leq -10\}$ C) $\{a \mid a \geq -10\}$ D) $\{a \mid a < -5\}$

270) $0.6x + 17 + x > 2x + 20 - 0.5x$ 270) _____

A) $\{x \mid x \geq -3\}$ B) $\{x \mid x > 30\}$ C) $\{x \mid x < 30\}$ D) $\{x \mid x < -3\}$

271) $\frac{x}{2} + 5 \leq 7$ 271) _____

A) $\{x \mid x \geq 4\}$ B) $\{x \mid x < 6\}$ C) $\{x \mid x \leq 0\}$ D) $\{x \mid x \leq 4\}$

272) $24n - 48 \leq 6(3n - 9)$ 272) _____

A) $\{n \mid n \leq -1\}$ B) $\{n \mid n > -1\}$ C) $\{n \mid n \geq -1\}$ D) $\{n \mid n < -1\}$

273) $8(x - 7) - 7x < -1(-3x + 5) - 3x$ 273) _____

A) $\{x \mid x > -51\}$ B) $\{x \mid x < -51\}$ C) $\{x \mid x > 51\}$ D) $\{x \mid x < 51\}$

274) $\frac{5}{18}(x + 8) > \frac{1}{9}(x + 2)$ 274) _____

A) $\{x \mid x < 12\}$ B) $\{x \mid x > -12\}$ C) $\{x \mid x < -12\}$ D) $\{x \mid x > 12\}$

275) $6(2x - 4) \leq 36$ 275) _____

A) $\left\{x \mid x \leq \frac{10}{3}\right\}$ B) $\{x \mid x \leq 5\}$ C) $\left\{x \mid x < \frac{10}{3}\right\}$ D) $\{x \mid x \geq 5\}$

276) $2(t + 7) < 6(t - 4)$ 276) _____

A) $\left\{x \mid x > \frac{11}{2}\right\}$ B) $\left\{x \mid x > \frac{19}{3}\right\}$ C) $\left\{x \mid x < \frac{19}{2}\right\}$ D) $\left\{x \mid x > \frac{19}{2}\right\}$

277) $\frac{3}{4}(3x + 3) \geq 19$ 277) _____

A) $\left\{x \mid x \geq \frac{76}{9}\right\}$ B) $\left\{x \mid x \geq \frac{67}{9}\right\}$ C) $\left\{x \mid x < \frac{67}{9}\right\}$ D) $\left\{x \mid x \geq \frac{67}{3}\right\}$

278) $\frac{3}{5}(7x - 5) - \frac{3}{4} < \frac{1}{4}$ 278) _____

A) $\left\{x \middle| x < \frac{10}{7}\right\}$ B) $\left\{x \middle| x < \frac{20}{21}\right\}$ C) $\left\{x \middle| x < \frac{20}{3}\right\}$ D) $\left\{x \middle| x > \frac{20}{21}\right\}$

Translate the sentence to an algebraic inequality.

279) A number is greater than 2. 279) _____

A) $x \geq 2$ B) $x > 2$ C) $x < 2$ D) $x \leq 2$

280) A number is less than or equal to -4. 280) _____

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

281) John weighs at least 89 pounds. 281) _____

A) $x \geq 89$ B) $x < 89$ C) $x \leq 89$ D) $x > 89$

282) The cost is no more than $563.36. 282) _____

A) $x < 563.36$ B) $x \leq 563.36$ C) $x > 563.36$ D) $x \geq 563.36$

283) The number of people at a concert is not to exceed 1522. 283) _____

A) $x > 1522$ B) $x \geq 1522$ C) $x \leq 1522$ D) $x < 1522$

284) The height of a member of the basketball team is at least 78 inches. 284) _____

A) $x \geq 78$ B) $x < 78$ C) $x > 78$ D) $x \leq 78$

Solve the problem.

285) One side of a rectangle is 14 inches and the other side is x inches. What values of x will make the perimeter at least 52? 285) _____

A) $x \geq 12$ B) $x < 12$ C) $x \leq 12$ D) $0 < x \leq 12$

286) One side of a rectangle is 9 inches and the other side is x inches. Find the value of x if the area must be at least 99 square inches. 286) _____

A) $0 < x \leq 11$ B) $x \leq 11$ C) $x \geq 11$ D) $x = 11$

287) A shop keeper is making a triangular sign for his store front, but he must keep the sign under 20 ft^2 to adhere to zoning laws. If the base of the sign is 2 ft, what is the maximum height of the triangular sign? 287) _____

A) 5 ft B) 10 ft C) 20 ft D) 38 ft

288) The equation $y = 0.004x + 0.40$ can be used to determine the approximate profit, y in dollars, of producing x items. How many items must be produced so the profit will be at least $3407? 288) _____

A) $x \leq 851{,}650$ B) $0 < x \leq 851{,}649$ C) $x \geq 851{,}650$ D) $x \geq 851{,}850$

289) If the formula $R = -0.037t + 50.1$ can be used to predict the world record in the 400-meter dash t years after 1925, for what years will the world records be 47.4 seconds or less? 289) _____

A) 1998 or after B) 1999 or after C) 1973 or after D) 1997 or after

290) A car rental company has two rental rates. Rate 1 is $42 per day plus $.14 per mile. Rate 2 is $84 per day plus $.07 per mile. If you plan to rent for one week, how many miles would you need to drive to pay less by taking Rate 2? 290) _____

A) more than 4200 miles B) more than 58,800 miles
C) more than 30,100 miles D) more than 14,700 miles

291) Jim has gotten scores of 95 and 63 on his first two tests. What score must he get on his third test to keep an average of 80 or greater? 291) _____

A) At least 81 B) At least 79.3 C) At least 79 D) At least 82

292) Jon has 836 points in his math class. He must have 63% of the 1500 points possible by the end of the term to receive credit for the class. What is the minimum number of additional points he must earn by the end of the term to receive credit for the class? 292) _____

A) 109 points B) 664 points C) 527 points D) 945 points

293) DG's Plumbing and Heating charges $50 plus $60 per hour for emergency service. Bill remembers being billed just over $400 for an emergency call. How long to the nearest hour was the plumber at Bill's house? 293) _____

A) 14 hours B) 8 hours C) 10 hours D) 6 hours

294) A 7-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 $27\frac{2}{3}$ lb? 294) _____

A) more than $15\frac{1}{2}$ week(s) B) more than 32 weeks

C) more than 52 weeks D) more than 31 weeks

Answer the question or solve the problem.

295) True or False? If $x < 5$ then $-6x < -30$. 295) _____

A) True B) False

296) True or False? If $x > 3$ then $10x > 30$. 296) _____

A) True B) False

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

297) Under what conditions must the inequality symbol be reversed when solving an inequality? 297) _____

298) In solving the inequality $9x \leq -27$, would you have to reverse the inequality symbol? Explain why. 298) _____

299) If $a < b$, is it always true that $\frac{1}{a} > \frac{1}{b}$? Explain. 299) _____

300) If $a \leq b$, is it always true that $a - 5 \leq b - 5$? Explain. 300) _____

301) If $a \leq b$, is it always true that $-7a \leq -7b$? Explain. 301) _____

1) C
2) A
3) C
4) C
5) B
6) D
7) A
8) C
9) B
10) B
11) D
12) B
13) D
14) C
15) A
16) C
17) A
18) D
19) D
20) D
21) C
22) A
23) B
24) D
25) A
26) Yes, the friend did make a mistake. She should have added 20 to both sides of the equation. The correct solution should be $x = 49$.
27) Yes, the friend did make a mistake. He should have multiplied by $\frac{8}{3}$ on both sides of the equation. The correct solution should be $x = \frac{40}{3}$.
28) The first step is to add $(- b)$ to both sides of the equation. The solution will be $x = a + (- b)$.
29) The first step is to multiply both sides of the equation by $\frac{b}{a}$. The solution will be $x = \frac{cb}{da}$.
30) -3
31) B
32) B
33) D
34) D
35) C
36) D
37) C
38) D
39) A
40) A
41) B

42)

x	1	2	3	4	5
-9x + 5	-4	-13	-22	-31	-40

; x = 4

43)

x	-5	-4	-3	-2	-1
3x + 4	-22	-18	-14	-10	-6

; x = -1

44) C
45) C
46) C
47) D
48) C
49) A
50) C
51) B
52) C
53) C
54) B
55) B
56) C
57) C
58) A
59) B
60) A
61) C
62) A
63) A
64) B
65) B
66) A
67) A
68) A
69) A
70) B
71) A
72) A
73) A
74) There is no solution.
75) True. Each has the solution set 5.
76) False. - 6 = 3 is a false statement, thus there is no solution.
77) False. Solving creates a true statement without a variable, thus the equation has infinitely many solutions.
78) All real numbers.
79) A
80) D
81) D
82) C
83) A
84) C
85) A

86) D
87) B
88) C
89) B
90) B
91) D
92) B
93) A
94) C
95) D
96) B
97) A
98) D
99) B
100) A
101) D
102) D
103) B
104) B
105) D
106) A
107) C
108) C
109) A
110) B
111) B
112) C
113) B
114) B
115) D
116) B
117) D
118) B
119) C
120) C
121) B
122) C
123) C
124) C
125) D
126) D
127) B
128) D
129) B
130) A
131) C
132) D
133) A
134) C
135) D

136) D
137) C
138) D
139) A
140) D
141) A
142) A
143) D
144) B
145) A
146) D
147) C
148) D
149) C
150) A
151) D
152) B
153) C
154) D
155) D
156) D
157) A
158) C
159) A
160) A
161) A
162) C
163) A
164) C
165) B
166) A
167) i
168) x - 2, x - 1, x
169) $\frac{m}{2}$ or $\frac{1}{2}$ m
170) No, it is not correct. When using the formula d = rt (distance = rate × time), you must make sure that all the units correspond. When expressing rate in miles per hour (mph), you should express time in hours, not minutes. Replace y minutes with $\frac{y}{60}$ hours to calculate a distance of d = x mph × $\frac{y}{60}$ hours = $\frac{xy}{60}$ miles. (Alternatively, convert the rate to miles per minute and calculate d = $\frac{x}{60}$ miles per minute × y minutes = $\frac{xy}{60}$ miles.)
171) The investment broker is incorrect. Given an APR of 17%, for every dollar you invest, you will earn $0.17 after one year. The investment broker apparently forgot to divide by 100 when converting the percentage to a decimal. Then again, maybe the investment broker is taking advantage of you. The APR sounds very high, too.
172) A
173) A
174) B
175) B
176) A

177) B
178) C
179) B
180) B
181) C
182) D
183) B
184) B
185) D
186) C
187) D
188) D
189) A
190) A
191) B
192) A
193) C
194) D
195) C
196) C
197) D
198) A
199) B
200) C
201) D
202) A
203) C
204) C
205) D
206) D
207) D
208) C
209) A
210) B
211) A
212) B
213) B
214) C
215) D
216) B
217) A
218) D
219) B
220) B
221) D
222) No. The variable r should not appear on both sides of the equation in the solution.
223) No. The variable t should not appear on both sides of the equation in the solution.
224) B
225) B
226) Answers will vary, but the product of the three dimensions must be 108.

227) A
228) B
229) A
230) B
231) A
232) C
233) A
234) A
235) D
236) B
237) D
238) D
239) C
240) A
241) A
242) A
243) C
244) D
245) C
246) C
247) B
248) B
249) A
250) B
251) A
252) B
253) B
254) B
255)

x	5	6	7	8	9
$2x + 4$	14	16	18	20	22

; $x \geq 7$

256)

x	-2	-1	0	1	2
$-3x + 5$	11	8	5	2	-1

; $x < 1$

257)

x	1	2	3	4	5
$-2x + 7$	5	3	1	-1	-3

; $x \geq 2$

258)

x	-1	0	1	2	3
$4 + x$	3	4	5	6	7
$3x + 2$	-1	2	5	8	11

; $x > 1$

259) C
260) B
261) B
262) C
263) B
264) D
265) D
266) A
267) C

268) C
269) C
270) B
271) D
272) A
273) D
274) B
275) B
276) D
277) B
278) B
279) B
280) D
281) A
282) B
283) C
284) A
285) A
286) C
287) C
288) C
289) A
290) A
291) D
292) A
293) D
294) D
295) B
296) A
297) When multiplying or dividing by a negative number.
298) No, since you don't have to divide or multiply by a negative number. The fact that the number you are dividing into is negative is irrelevant. (Explanations will vary.)
299) No. The second statement only follows from the first if a and b are either both positive or both negative. Divide both sides of the original inequality by (ab). If a and b are of opposite signs, then (ab) < 0. When dividing by a negative number, the inequality sign must be reversed (thus, $\frac{a}{ab} > \frac{b}{ab}$, and $\frac{1}{b} > \frac{1}{a}$).In addition, if a (or b) is zero, then its reciprocal is undefined. (Explanations will vary.)
300) Yes. Adding a positive or negative number to both sides of an inequality produces an equivalent inequality. (Explanations will vary.)
301) No..Multiplying an inequality by a negative number requires reversing the inequality symbol. (Explanations will vary.)