Test Bank for Beginning and Intermediate Algebra with Applications and Visualization 4th Rockswold

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

Solve the equation.

1) $z - 7 = -6$
A) -1
B) -13
C) 13
D) 1
Answer: D

2) $x + 4 = 5$
A) -9
B) 1
C) -1
D) 9
Answer: B

3) $7 = z + 1$
A) 6
B) 8
C) -6
D) -8
Answer: A

4) $-18 = b - 20$
A) 2
B) -38
C) -2
D) 38
Answer: A

5) $b - 7 = 14$
A) 21
B) -7
C) -21
D) 7
Answer: A

6) $16 = -25 + x$
A) -9
B) -41
C) 9
D) 41
Answer: D

7) $z - 13.83 = 0$
A) -12.83
B) 13.83
C) 12.83
D) -13.83
Answer: B

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8) $-15.3 = 13.3 + x$

A) -2

B) -28.6

C) 28.6

D) 2

Answer: B

9) $m + \frac{8}{11} = \frac{9}{11}$

A) $\frac{8}{11}$

B) $\frac{17}{11}$

C) 1

D) $\frac{1}{11}$

Answer: D

10) $x - \frac{3}{8} = -\frac{1}{8}$

A) $-\frac{1}{4}$

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

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

D) $\frac{1}{4}$

Answer: D

11) $9a = -18$

A) 27

B) -2

C) 1

D) -27

Answer: B

12) $-27 = 3k$

A) 30

B) 1

C) -30

D) -9

Answer: D

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13) $-8x = -40$

A) 32
B) −32
C) 5
D) 2

Answer: C

14) $2b = -24$

A) −12
B) 26
C) 1
D) −26

Answer: A

15) $-14.7 = -4.9c$

A) −9.8
B) 2.0
C) 3.0
D) 9.8

Answer: C

16) $\frac{1}{22}a = 0$

A) 0
B) −22
C) 22
D) 1

Answer: A

17) $\frac{3}{8}s = \frac{1}{2}$

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

B) $-\frac{4}{3}$

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

D) 4

Answer: C

18) $-4.1c = -24.6$

A) −20.5
B) 20.5
C) 2.0
D) 6.0

Answer: D

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19) $\frac{2}{3}p = \frac{5}{8}$

A) $-\frac{15}{16}$

B) $\frac{16}{15}$

C) $\frac{15}{16}$

D) $-\frac{15}{8}$

Answer: C

Solve the problem.

20) A small farm field is a square measuring 330 ft on a side. What is the perimeter of the field?

A) 2640 ft
B) 660 ft
C) 330 ft
D) 1320 ft

Answer: D

21) The area of a rectangular garden is to be 147 ft.^{2}. Find the length if the width must be 7 ft. (Use A = lw)

A) 20 ft.
B) 140 ft.
C) 21 ft.
D) 23 ft.

Answer: C

22) A box has a volume of 408 in.^{3}. The length is 6 in. and the width is 17 in. Find the height. (Use V = lwh)

A) 8 in.
B) 5 in.
C) 2 in.
D) 4 in.

Answer: D

23) If a salesman's salary is multiplied by 1.01, which corresponds to salary plus a 1% bonus, the result is $28,280. Find the salesman's current salary.

A) $30,800
B) $28,000
C) $280
D) $28,280

Answer: B

24) One lap around a running track is 400 meters. How many laps will you run if you travel 3600 meters?

A) 18 laps
B) $\frac{9}{2}$ laps
C) 36 laps
D) 9 laps

Answer: D

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25) There are 4 quarts in 1 gallon. Find the number of quarts in 6 gallons.

A) 24 quarts
B) 3 quarts
C) 12 quarts
D) $\frac{3}{2}$ quarts

Answer: A

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:

$x - 29 = 32$
$x = 32 - 29$
$x = 3$

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

Answer: Yes, the friend did make a mistake. She should have added 29 to both sides of the equation. The correct solution should be $x = 61$.

27) Your friend solves an equation as follows:

$\frac{5}{9}x = 4$

$x = 4 \cdot \frac{5}{9}$

$x = \frac{20}{9}$

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

Answer: Yes, the friend did make a mistake. He should have multiplied by $\frac{9}{5}$ on both sides of the equation. The correct solution should be $x = \frac{36}{5}$.

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

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

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?

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

30) What should you add to both sides of the equation to solve $n + 5 = -19$?

Answer: -5

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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 $\frac{1}{5}x = -\frac{4}{3}$?

A) $-\frac{4}{3}$

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

C) 5

D) $-\frac{3}{4}$

Answer: C

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) $15x + 7 = 25$

A) No

B) Yes; $a = 15$, $b = 32$

C) Yes; $a = 18$, $b = 15$

D) Yes; $a = 15$, $b = -18$

Answer: D

33) $5x - 8 = 0$

A) Yes; $a = -8$, $b = 5$

B) No

C) Yes; $a = 5$, $b = 8$

D) Yes; $a = 5$, $b = -8$

Answer: D

34) $7x^2 - 11 = 13$

A) Yes; $a = 24$, $b = 7$

B) Yes; $a = 7$, $b = -24$

C) No

D) Yes; $a = 7$, $b = 2$

Answer: C

35) $\frac{2}{3}x = 0$

A) Yes; $a = \frac{2}{3}$, $b = 0$

B) No

C) Yes; $a = 2$, $b = 3$

D) Yes; $a = 0$, $b = \frac{2}{3}$

Answer: A

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36) $\frac{15}{x} + 11 = 8$

A) No
B) Yes; a = –3, b = 15
C) Yes; a = 15, b = 19
D) Yes; a = 15, b = 3

Answer: A

37) $6\sqrt{x} - 5 = 0$

A) No
B) Yes; a = –5, b = 6
C) Yes; a = 6, b = 5
D) Yes; a = 6, b = –5

Answer: A

38) $60.1x = 5.3$

A) No
B) Yes; a = 60.1, b = –5.3
C) Yes; a = 60.1, b = 5.3
D) Yes; a = –5.3, b = 60.1

Answer: B

39) $9(x - 2) = 0$

A) Yes; a = 9, b = –18
B) Yes; a = –18, b = 9
C) No
D) Yes; a = 9, b = –2

Answer: A

40) $|8x| + 25 = 18$

A) Yes; a = –7, b = 8
B) No
C) Yes; a = 8, b = 7
D) Yes; a = 8, b = 43

Answer: B

41) $3x = 7x^3$

A) Yes; a = 3, b = –7
B) Yes; a = 3, b = 7
C) No
D) Yes; a = 7, b = –3

Answer: C

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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) $-8x - 5 = -37$

x	1	2	3	4	5
$-8x - 5$	-13				

Answer:

x	1	2	3	4	5
$-8x - 5$	-13	-21	-29	-37	-45

; $x = 4$

43) $2 + (3x - 3) = -4$

x	-5	-4	-3	-2	-1
$2 + (3x - 3)$	-16				

Answer:

x	-5	-4	-3	-2	-1
$2x + 3$	-16	-13	-10	-7	-4

; $x = -1$

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

Solve the equation.

44) $12 = 10x - 8$

A) 10
B) 2
C) 14
D) 9

Answer: B

45) $96 = 17x + 7x$

A) 72
B) 120
C) $\frac{1}{4}$
D) 4

Answer: D

46) $8p + 7 = 8 - 2p$

A) 10
B) $\frac{2}{5}$
C) $\frac{1}{10}$
D) -10

Answer: C

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47) $5y - 7 + y = 65 + 3y - 5y$

A) 9

B) $\frac{58}{7}$

C) $\frac{29}{3}$

D) $\frac{29}{4}$

Answer: A

48) $\frac{1}{4}a - \frac{1}{4} = -5$

A) 21

B) 19

C) −21

D) −19

Answer: D

49) $-3.4q = -20 - 1.4q$

A) −22

B) 10

C) 5.9

D) 6.3

Answer: B

50) $-10.3q + 1.3 = -84.7 - 1.7q$

A) 8.5

B) 10

C) 8.3

D) −95

Answer: B

51) $9x - (4x - 1) = 2$

A) $\frac{1}{13}$

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

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

D) $-\frac{1}{13}$

Answer: B

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52) $(y - 7) - (y + 6) = 8y$

A) $-\frac{13}{6}$

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

C) $-\frac{1}{8}$

D) $-\frac{1}{6}$

Answer: B

53) $7x + 5(-3x - 5) = -27 - 6x$

A) 26

B) – 1

C) 1

D) $\frac{26}{7}$

Answer: C

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

54) $15m + 9 = 3(2m - 12)$

A) No solutions

B) One solution

C) Infinitely many solutions

Answer: B

55) $31 = 4x - 5$

A) Infinitely many solutions

B) No solutions

C) One solution

Answer: C

56) $7x = 7x - 28$

A) Infinitely many solutions

B) One solution

C) No solutions

Answer: C

57) $2(x + 4) = 2x + 8$

A) One solution

B) No solutions

C) Infinitely many solutions

Answer: C

58) $-8(x + 8) + (10x) = 2(x - 3) - 10$

A) Infinitely many solutions

B) One solution

C) No solutions

Answer: C

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59) $18(x + 1) = 2(9x - 4) + 26$
A) No solutions
B) One solution
C) Infinitely many solutions
Answer: C

60) $7x = 8(x + 6) - x$
A) One solution
B) No solutions
C) Infinitely many solutions
Answer: B

61) $4x - (7x - 5) = 12 - 3x$
A) One solution
B) No solutions
C) Infinitely many solutions
Answer: B

62) $15k + 26 = 3(5k + 8)$
A) One solution
B) No solutions
C) Infinitely many solutions
Answer: B

63) $5x + 5(x + 1) + 4 = 9 - 3x$
A) No solutions
B) One solution
C) Infinitely many solutions
Answer: B

Solve the problem.

64) Brand A soup contains 950 milligrams of sodium. Write a formula that computes the number of milligrams of sodium, S, in x cans of Brand A soup.
A) $S = 950$
B) $S = 950x$
C) $S = x - 950$
D) $S = 950 + x$
Answer: B

65) The formula $C = 20d + 25$ 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 $325?
A) 13 days
B) 15 days
C) 16 days
D) 25 days
Answer: B

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66) The temperature, t, in degrees Fahrenheit, of water being heated is $67 + \frac{1}{3}$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?

A) 3 min
B) 9 min
C) 18 min
D) 6 min

Answer: B

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 $35,000?

A) 10 yr
B) 664 yr
C) 4 yr
D) 12 yr

Answer: C

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 $50? (Round to the nearest minute.)

A) 158 min
B) 0 min
C) 73 min
D) 4 min

Answer: D

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.)

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

Answer: C

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 8 degrees? (Round to the nearest foot.)

A) 69 ft
B) 43 ft
C) 32 ft
D) 13 ft

Answer: D

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Provide an appropriate response.

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

Is this a linear equation?

A) Yes

B) No

Answer: A

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

Is this a linear equation?

A) No

B) Yes

Answer: A

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

Is this a linear equation?

A) No

B) Yes

Answer: A

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 $-15 = 83$, what is the final solution of the equation?

Answer: There is no solution.

75) True or false? This pair of equations is equivalent. $7x - 3 = 39$ and $9x + 6 = 60$

Answer: True. Each has the solution set 6.

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

Answer: False. $-6 = 3$ is a false statement, thus there is no solution.

77) True or false? The solution of the equation $5(9s - 5) = 45s - 25$ is 1. Explain.

Answer: False. Solving creates a true statement without a variable, thus the equation has infinitely many solutions.

78) Find all values of s that make this statement true: $5(7s - 6) = 35s - 30$.

Answer: All real numbers.

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 1 is 19.

A) $x + 19 = 1; -18$

B) $x = 1 + 19; 20$

C) $x + 1 = 19; 18$

D) $1x = 19; \frac{1}{19}$

Answer: C

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80) A number minus 3 equals 5.

A) $x - 3 = 5; 8$

B) $x = 3 - 5; -2$

C) $x = 5 - 3; 2$

D) $3 - x = 5; -2$

Answer: A

81) 3 times a number equals 10 less than 4 times the number.

A) $3x - 10 = 4x; -10$

B) $3x = 10 - 4x; \frac{10}{7}$

C) $3x = 4x - 10; 10$

D) $3x = 10 - 4; 2$

Answer: C

82) Four times a number added to 8 times the number equals 36.

A) $8x - 4x = 36; 3$

B) $4(x + 8) = 36x; -3$

C) $8x + 4x = 36; 3$

D) $4x(8 + x) = 36; -3$

Answer: C

83) When 5 times a number is subtracted from 7 times the number, the result is 18.

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

B) $5(x - 7) = 18x; 2$

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

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

Answer: D

84) If 4 times a number is added to –5, the result is equal to 9 times the number.

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

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

C) $4x + 5x = 9; 1$

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

Answer: A

85) When $\frac{1}{4}$ of a number is added to 12, the result is 32.

A) $12 + \frac{1}{4}x = 32; 80$

B) $32 + \frac{1}{4}x = 12; 80$

C) $\frac{1}{4}x - 12 = 32; 176$

D) $\frac{1}{4} + x = 32; 32$

Answer: A

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86) When 50% of a number is subtracted from 70, the result is 2 less than the number.
A) $70 - 50 = x - 2$; 22
B) $0.5x - 70 = x - 2$; –136
C) $70 + 0.5x = x - 2$; 144
D) $70 - 0.5x = x - 2$; 48

Answer: D

Find the number or numbers.

87) The sum of two consecutive even integers is 94. Find the larger number.
A) 42
B) 56
C) 48
D) 44

Answer: C

88) The sum of the page numbers on the facing pages of a book is 283. Find the larger page number.
A) 137
B) 152
C) 140
D) 142

Answer: D

89) The difference between two positive integers is 36. One integer is three times as great as the other. Find the integers.
A) 36 and 54
B) 18 and 54
C) 54 and 90
D) 18 and 36

Answer: B

90) If 9 is added to a number and the sum is doubled, the result is 14 less than the number. Find the number.
A) –32
B) –4
C) 4
D) 5

Answer: A

91) The sum of twice a number and 8 less than the number is the same as the difference between –28 and the number. What is the number?
A) –6
B) –10
C) –4
D) –5

Answer: D

92) The sum of two consecutive integers is –257. Find the larger integer.
A) –129
B) –127
C) –128
D) –130

Answer: C

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93) The sum of three consecutive integers is 402. Find the integers.

A) 133, 134, 135
B) 132, 133, 134
C) 134, 135, 136
D) 132, 134, 136

Answer: A

94) The sum of three consecutive odd integers is 201. Find the integers.

A) 67, 69, 71
B) 69, 71, 73
C) 65, 67, 69
D) 60, 61, 62

Answer: C

95) If three times the smaller of two consecutive integers is added to four times the larger, the result is 102. Find the smaller integer.

A) 15
B) 13
C) 42
D) 14

Answer: D

96) If the first and third of three consecutive odd integers are added, the result is 63 less than five times the second integer. Find the third integer.

A) 19
B) 42
C) 23
D) 21

Answer: C

Write the percent as a fraction in simplest form.

97) 42.5%

A) $\frac{17}{40}$

B) $\frac{17}{4}$

C) $\frac{17}{80}$

D) $\frac{17}{20}$

Answer: A

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98) $28\frac{4}{7}\%$

A) $\frac{20}{7}$

B) $\frac{2}{7}$

C) $\frac{4}{7}$

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

Answer: B

99) $366\frac{2}{3}\%$

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

B) $36\frac{2}{3}$

C) $1\frac{5}{6}$

D) $7\frac{1}{3}$

Answer: A

100) 0.7%

A) $\frac{7}{500}$

B) $\frac{7}{1000}$

C) $\frac{7}{2000}$

D) $\frac{7}{100}$

Answer: B

101) $\frac{2}{3}\%$

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

B) $\frac{1}{75}$

C) $\frac{1}{150}$

D) $\frac{1}{300}$

Answer: C

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102) 62.5%

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

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

C) $\frac{5}{9}$

D) $\frac{25}{4}$

Answer: A

103) 4.15%

A) $\frac{83}{200}$

B) $\frac{83}{2}$

C) $\frac{83}{20}$

D) $\frac{83}{2000}$

Answer: D

Write the percent as a decimal.

104) 77%

A) 0.77
B) 7.7
C) 0.077
D) 0.66

Answer: A

105) 90%

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

Answer: A

106) 50.5%

A) 5.05
B) 0.395
C) 0.505
D) 0.0505

Answer: C

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107) 200%

A) 20
B) 2.01
C) 2
D) 0.2

Answer: C

108) 120%

A) 1.21
B) 0.12
C) 12
D) 1.2

Answer: D

109) 870%

A) 8.70
B) 0.870
C) 87
D) 8.71

Answer: A

110) 0.3%

A) 0.03
B) 0.003
C) 0.3
D) 0.004

Answer: B

111) 79.71%

A) 0.7971
B) 7.971
C) 0.07971
D) 0.7871

Answer: A

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

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

Answer: A

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113) $16\frac{1}{9}\%$

A) 0.161
B) $0.16\overline{1}$
C) $0.\overline{161}$
D) $16.\overline{1}$

Answer: B

Write as a percent.

114) 0.35

A) 3.5%
B) 350%
C) 35%
D) 0.035%

Answer: C

115) 0.7

A) 0.07%
B) 700%
C) 0.7%
D) 70%

Answer: D

116) 0.933

A) 0.0933%
B) 933%
C) 93.3%
D) 0.933%

Answer: C

117) 0.791

A) 0.791%
B) 79.1%
C) 791%
D) 0.0791%

Answer: B

118) 8.2

A) 820%
B) 0.0082%
C) 0.82%
D) 82%

Answer: A

119) 0.00720

A) 0.720%
B) 0.000720%
C) 0.0720%
D) 0.360%

Answer: A

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120) 3

A) 0.3%
B) 300%
C) 0.03%
D) 150%

Answer: B

121) 0.00081

A) 0.0081%
B) 0.000081%
C) 0.81%
D) 0.081%

Answer: D

122) 0.027

A) 0.0027%
B) 2.7%
C) 27%
D) 0.27%

Answer: B

123) 0.1242

A) 0.01242%
B) 1.242%
C) 124.2%
D) 12.42%

Answer: D

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

124) $\frac{14}{100}$

A) 1.4%
B) 0.14%
C) 14%
D) 140%

Answer: C

125) $\frac{8}{10}$

A) 0.8%
B) 80%
C) 800%
D) 8%

Answer: B

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126) $\frac{1}{4}$

A) 40%
B) 62.5%
C) 2.5%
D) 25%

Answer: D

127) $\frac{9}{11}$

A) 81.8%
B) 110%
C) 8.2%
D) 74.4%

Answer: A

128) $\frac{63}{100}$

A) 6.3%
B) 31.5%
C) 1000%
D) 63%

Answer: D

129) $\frac{12}{17}$

A) 170%
B) 7.1%
C) 41.5%
D) 70.6%

Answer: D

130) $\frac{7}{4}$

A) 17.5%
B) 218.8%
C) 175%
D) 80%

Answer: C

Solve.

131) An insurance fund invests $91,200 in real estate and earns 11% per year on the investment. How much money is earned per year?

A) $10,032
B) $82,909
C) $829,091
D) $100,320

Answer: A

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132) A chemical solution contains 6% calcium. How much calcium is in 3 mL of solution?
A) 50 mL
B) 1.8 mL
C) 5 mL
D) 0.18 mL

Answer: D

133) A hardware store had monthly sales of $78,800 and spent 18% of it on freight costs. How much was spent on freight costs?
A) $141,840
B) $14,184
C) $43,778
D) $437,778

Answer: B

134) The American National Bank pays $3\frac{3}{4}$% interest per year on money market accounts. What is the annual income on a money market account of $118,200? Round your answer to the nearest dollar.
A) $394,000
B) $4433
C) $44,330
D) $3,940,000

Answer: B

135) A gardener has 30 clients, 30% of which are businesses. Find the number of business clients.
A) 900 clients
B) 9 clients
C) 9000 clients
D) 90 clients

Answer: B

136) 52.5% of the students at a certain college are men. If the total number of students at the college is 3200, how many female students are there?
A) 1680 students
B) 1540 students
C) 1600 students
D) 1520 students

Answer: D

137) If Gloria received a 6 percent raise and is now making $23,320 a year, what was her salary before the raise?
A) $23,000
B) $21,320
C) $22,320
D) $22,000

Answer: D

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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 $1236?

A) $1186
B) $1250
C) $1200
D) $1273

Answer: C

139) Alex and Juana went on a 40–mile canoe trip with their class. On the first day they traveled 26 miles. What percent of the total distance did they canoe?

A) 0.65%
B) 200%
C) 65%
D) 2%

Answer: C

140) Students at Maple School earned $484 selling candles. They want to accumulate $2000 for a club trip. What percent of their goal has been reached?

A) 0.242%
B) 40%
C) 24.2%
D) 4%

Answer: C

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

141) d = 345 miles, r = 69 mph

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

Answer: D

142) d = 1200 feet, r = 10 feet per second

A) t = 12,000 sec
B) t = 12 sec
C) t = 120 sec
D) $t = \frac{1}{120}$ sec

Answer: C

143) t = 290 sec, r = 10 feet per second

A) d = 2900 ft
B) $d = \frac{1}{29}$ ft
C) d= 29,000 ft
D) d = 29 ft

Answer: A

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144) r = 13.3 mph, t = 3 hours
A) d = 4.4 mi
B) d = 53.2 mi
C) d = 13.3 mi
D) d = 39.9 mi

Answer: D

145) r = 21 feet per minute, t = 4 minutes
A) d = 84 ft
B) d = 0.2 ft
C) d = 5.3 ft
D) d = 17 ft

Answer: A

146) d = 600 miles, r = 60 mph
A) t = 11 hr
B) t = 66 hr
C) t = 10 hr
D) t = 360 hr

Answer: C

147) d = 162 miles, t = 3 days
A) r = 51 mi/day
B) r = 159 mi/day
C) r = 59 mi/day
D) r = 54 mi/day

Answer: D

148) d = 24 miles, t = 5 hours (Round to the nearest tenth when necessary.)
A) r = 19 mph
B) r = 4.8 mph
C) r = 120 mph
D) r = 0.2 mph

Answer: B

Solve the problem.

149) Jay drove 325 kilometers at the average rate of 65 kilometers per hour. How long did the trip take?
A) 5 hr
B) $\frac{1}{5}$ hr
C) 6 hr
D) 4 hr

Answer: A

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150) Janet drove 395 kilometers and the trip took 5 hours. How fast was Janet traveling?

A) 80 km/hr

B) $\frac{1}{79}$ km/hr

C) 1975 km/hr

D) 79 km/hr

Answer: D

151) Jill is 12.5 kilometers away from Joe. Both begin to walk toward each other at the same time. Jill walks at 1 km/hr. They meet in 5 hours. How fast is Joe walking?

A) 7.5 km/hr

B) 3.5 km/hr

C) 1.5 km/hr

D) 1.25 km/hr

Answer: C

152) From a point on a straight road, two cars are driven in opposite directions, one at 33 miles per hour and the other at 75 miles per hour. In how many hours will they be 540 miles apart?

A) 6 hours

B) Not enough information

C) 5 hours

D) 4 hours

Answer: C

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 5 miles per hour. In how many hours will they be 60 miles apart?

A) 6 hours

B) 4 hours

C) Not enough information

D) 5 hours

Answer: D

154) From a point on a river, two boats are driven in opposite directions, one at 6 miles per hour and the other at 11 miles per hour. In how many hours will they be 34 miles apart?

A) 1 hr

B) 4 hr

C) 3 hr

D) 2 hr

Answer: D

155) A car traveling 68 miles per hour passes a bus traveling 60 in the same direction on the highway. If they maintain their speeds, how long will it take them to be 28 miles apart?

A) 4.5 hr.

B) 4 hr.

C) 7 hr.

D) 3.5 hr.

Answer: D

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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 40 miles per hour and drove another $4\frac{1}{2}$ hours. If the entire trip was 312 miles, how fast did she drive in rush–hour traffic?

A) $23\frac{1}{2}$ mph

B) 24 mph
C) 23 mph
D) 22 mph

Answer: D

157) A solution contains 7% salt. How much water should be added to 68 ounces of this solution to make a 1.7% solution?

A) 215 oz
B) 212 oz
C) 221 oz
D) 209 oz

Answer: B

158) How many liters of a 10% alcohol solution must be mixed with 80 liters of a 50% solution to get a 20% solution?

A) 240 L
B) 24 L
C) 32 L
D) 320 L

Answer: A

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

A) 13.3 L
B) 10 L
C) 16 L
D) 20 L

Answer: B

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

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

Answer: B

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161) A chemist needs 120 milliliters of a 54% solution but has only 48% and 84% solutions available. Find how many milliliters of each that should be mixed to get the desired solution.
A) 110 mL of 48%; 10 mL of 84%
B) 20 mL of 48%; 100 mL of 84%
C) 10 mL of 48%; 110 mL of 84%
D) 100 mL of 48%; 20 mL of 84%

Answer: D

162) A college student earned $8000 during summer vacation working as a waiter in a popular restaurant. The student invested part of the money at 8% and the rest at 6%. If the student received a total of $546 in interest at the end of the year, how much was invested at 8%?
A) $3300
B) $4700
C) $1333
D) $4000

Answer: A

163) Paul invested twice as much in an account paying 5% interest as he did in an account paying 2% interest. If the total interest paid was $120, how much did he invest in each account?
A) $1000 at 5%, $2000 at 2%
B) $2000 at 5%, $1000 at 2%
C) $20 at 5%, $10 at 2%
D) $2000 at 5%, $1500 at 2%

Answer: B

164) Two bank loans, one for $6000 and the other for $8000, cost a total of $950 in interest for one year. The $6000 loan has an interest rate 3% higher than the interest rate for the $8000 loan. Find the interest rate for each loan.
A) 8% for $6000 loan; 5% for $8000 loan
B) 9% for $6000 loan; 6% for $8000 loan
C) 7.75% for $6000 loan; 4.75% for $8000 loan
D) 8.5% for $6000 loan; 5.5% for $8000 loan

Answer: D

165) Roberto invested some money at 6%, and then invested $3000 more than twice this amount at 11%. His total annual income from the two investments was $4250. How much was invested at 11%?
A) $28,000
B) $9000
C) $3100
D) $31,000

Answer: D

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Provide an appropriate response.

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

(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)

Answer: A

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?

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

Answer: i

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

Answer: $x - 2, x - 1, x$

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

Answer: $\frac{m}{2}$ or $\frac{1}{2}m$

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.

Answer: 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 $d = x \text{ mph} \times \frac{y}{60} \text{ hours} = \frac{xy}{60}$ 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) Consider the following claim made by an investment broker: This product earns an APR of 16%, so for every dollar you invest, you will earn $16 after one year. Is the investment broker correct? Explain.

Answer: The investment broker is incorrect. Given an APR of 16%, for every dollar you invest, you will earn $0.16 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.

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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 3.6 centimeters?

A) 7.2 cm^2

B) 12.96 cm^2

C) 46 cm^2

D) 51.84 cm^2

Answer: B

173) Find the area of a triangle with height 18 meters and base 20 meters.

A) 180 m^2

B) 19 m^2

C) 720 m^2

D) 360 m^2

Answer: A

174) The area of a trapezoid is 76 square feet. If the bases are 7 feet and 12 feet, find the altitude of the trapezoid.

A) 16 ft

B) 4 ft

C) 1.5 ft

D) 8 ft

Answer: D

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 6 meters and height 19 meters.

A) 25 m^2

B) 57 m^2

C) 25.5 m^2

D) 114 m^2

Answer: B

176) Find the area of the rectangle.



A) 441 m^2

B) 100 m^2

C) 62 m^2

D) 210 m^2

Answer: D

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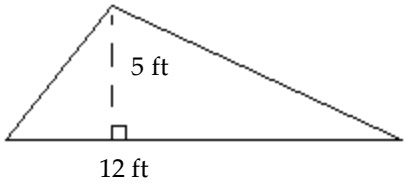
177) Find the area of the triangle.



A) $\frac{17}{2}$ ft^2

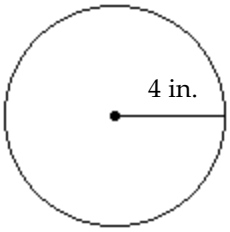
B) 30 ft^2

C) 15 ft^2

D) 60 ft^2

Answer: B

178) Find the area of the circle.



A) 16π in.^{2}

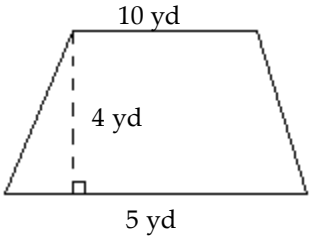
B) 32π in.^{2}

C) 8π in.^{2}

D) 4π in.^{2}

Answer: A

179) Find the area of the trapezoid.



A) 30 yd^2

B) $\frac{15}{2}$ yd^2

C) 100 yd^2

D) 60 yd^2

Answer: A

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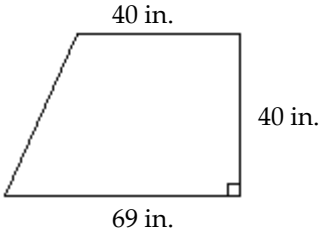
180) Find the area of the trapezoid.



A) $\frac{109}{2}$ in.^{2}

B) 1380 in.^{2}

C) $\frac{7961}{2}$ in.^{2}

D) 2180 in.^{2}

Answer: D

Solve.

181) The second angle of a triangle is 3 times as large as the first. The third angle is 35° more than the first. Find the measure of the smallest angle.

A) 55°
B) 35°
C) 145°
D) 29°

Answer: D

182) The second angle of a triangle is 4 times as large as the first. The third angle is 70° more than the sum of the other two angles. Find the measure of the second angle.

A) $2\frac{3}{4}°$

B) 11°
C) 55°
D) 44°

Answer: D

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 21 degrees larger than each of the other two angles. Find the measure of angle C.

A) 127°
B) 106°
C) 53°
D) 74°

Answer: D

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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 105° larger than each of A and B. What are the measures of the three angles?

A) A and B: 25°; C: 130°
B) A and B: 35°; C: 110°
C) A and C: 110°; B: 35°
D) A and B: 130°; C: 25°

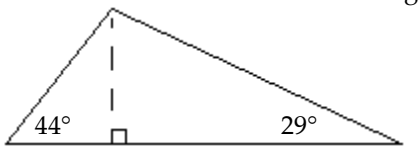
Answer: A

185) Two angles of a triangle are 10° and 70°. What is the measure of the third angle?

A) 10°
B) 100°
C) 80°
D) 280°

Answer: B

186) What is the measure of the third angle?



A) 46°
B) 61°
C) 287°
D) 107°

Answer: D

187) The angle measures in a triangle are 3x, 6x, and 5x. Find the value of x.

A) $\frac{45}{7}°$
B) 166°
C) $\frac{180}{7}°$
D) $\frac{90}{7}°$

Answer: D

Solve the problem.

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

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

Answer: D

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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 8 centimeters. Use 3.14 for π.

A) 11.14 cm^2

B) 25.12 cm^2

C) 200.96 cm^2

D) 78.88 cm^2

Answer: C

190) A wicker basket has a circular rim with a diameter of 10 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.

A) 100 in.

B) 62.8 in.

C) 29.4 in.

D) 31.4 in.

Answer: D

191) The diameter of a circle is 9 ft. Find its area.

A) 18π ft^2

B) 81π ft^2

C) 9π ft^2

D) $\frac{81}{4}\pi$ ft^2

Answer: D

192) The radius of a circle is $\frac{2}{3}$ in. Find its circumference.

A) $\frac{4}{9}\pi$ in

B) $\frac{4}{3}\pi$ in

C) $\frac{16}{9}\pi$ in

D) $\frac{2}{3}\pi$ in

Answer: B

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

A) 8 ft

B) 4π ft

C) 4 ft

D) 16 ft

Answer: C

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194) The circumference of a circle is 17π yd. Find its area.

A) 17π yd^2

B) 34π yd^2

C) $\frac{289}{4}\pi$ yd^2

D) $\frac{17}{2}\pi$ yd^2

Answer: C

195) Find the surface area of a cylinder with a radius of 3 cm and a height of 20 cm. Use 3.14 for π.

A) 376.8 cm^2

B) 395.64 cm^2

C) 433.32 cm^2

D) 1507.2 cm^2

Answer: C

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

A) 130 $in.^3$

B) 20 $in.^3$

C) 65 $in.^3$

D) 36 $in.^3$

Answer: A

197) A circular hole is filled with concrete to make a footing for a load–bearing pier. The hole measures 15 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.)

A) 16 in.

B) 19 in.

C) 23 in.

D) 25 in.

Answer: B

198) A cylindrical jelly jar is 3 in. across the top and about 7 in. high. How many cubic inches of jelly could it hold? Use 3.14 for π. Round the answer to the nearest tenth if necessary.

A) 131.9 $in.^3$

B) 49.5 $in.^3$

C) 197.8 $in.^3$

D) 98.9 $in.^3$

Answer: B

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199) The foundation for a cylindrical flower bed is a cylinder 18 yd in diameter and 4 yd high. How many cubic yd of concrete are needed to build the foundation? Use 3.14 for π. Round the answer to the nearest tenth if necessary.

A) 2034.7 yd^3

B) 1017.4 yd^3

C) 452.2 yd^3

D) 4069.4 yd^3

Answer: B

200) Find the surface area of a box with length 1 feet, width 2 feet, and height 1 feet.

A) 5 ft^2

B) 2 ft^2

C) 4 ft^2

D) 10 ft^2

Answer: D

201) Find the volume of a box with length $\frac{3}{5}$ in, width $\frac{3}{5}$ in, and height 1 in.

A) $\frac{18}{25}$ $in.^3$

B) $\frac{34}{25}$ $in.^3$

C) $\frac{27}{25}$ $in.^3$

D) $\frac{9}{25}$ $in.^3$

Answer: D

202) Find the surface area of a box with length 0.9 in, width 2.3 in, and height 3.0 in.

A) 6.21 ft^2

B) 23.34 ft^2

C) 12.42 ft^2

D) 11.67 ft^2

Answer: B

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Solve the formula for the specified variable.

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

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

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

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

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

Answer: A

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

A) $h = 2\pi(S - r)$

B) $h = S - r$

C) $h = \frac{S - 2\pi r^2}{2\pi r}$

D) $h = \frac{S}{2\pi r} - 1$

Answer: C

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

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

B) $h = \frac{B}{3V}$

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

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

Answer: A

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

A) $s_3 = P - s_1 - s_2$

B) $s_3 = s_1 + P - s_2$

C) $s_3 = s_1 + s_2 - P$

D) $s_3 = P + s_1 + s_2$

Answer: A

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

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

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

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

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

Answer: D

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

A) $b_1 = \frac{2A - hb_2}{h}$

B) $b_1 = \frac{2Ab_2 - h}{h}$

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

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

Answer: A

209) $d = rt$ for r

A) $r = d - t$

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

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

D) $r = dt$

Answer: B

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

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

B) $L = P - W$

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

D) $L = d - 2W$

Answer: C

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

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

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

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

D) $r = \frac{A}{n}$

Answer: C

Solve the problem.

212) Find the corresponding Celsius temperature for a temperature of 218°F. Round to the nearest tenth, if necessary.

A) 334.8°C
B) 103.3°C
C) 424.4°C
D) 117.6°C

Answer: B

213) Find the corresponding Fahrenheit temperature for a temperature of 30°C. Round to the nearest tenth, if necessary.

A) –1.1°F
B) 86°F
C) 34.4°F
D) 111.6°F

Answer: B

214) When the temperature is 59°F, what is the temperature in degrees Celsius? Round your answer to the nearest tenth if necessary.

A) 74.2°C
B) 138.2°C
C) 15.0°C
D) 0.8°C

Answer: C

215) What is the perimeter of a rectangle of length 30 ft and width 9 ft?

A) 156 ft
B) 69 ft
C) 78 ft
D) 39 ft

Answer: C

216) A rectangular Persian carpet has a perimeter of 232 inches. The length of the carpet is 30 inches more than the width. What are the dimensions of the carpet?

A) 73 inches by 103 inches
B) 86 inches by 116 inches
C) 101 inches by 131 inches
D) 43 inches by 73 inches

Answer: D

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217) A square plywood platform has a perimeter which is 11 times the length of a side, decreased by 35. Find the length of a side.
A) 7
B) 12
C) 5
D) 1
Answer: C

218) A pie–shaped (triangular) lake–front lot has a perimeter of 1800 feet. One side is 200 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.
A) 100 ft, 200 ft, 300 ft
B) 400 ft, 600 ft, 800 ft
C) 500 ft, 500 ft, 500 ft
D) 500 ft, 700 ft, 900 ft
Answer: B

219) Find the length of a rectangular lot with a perimeter of 76 meters if the length is 6 meters more than the width. ($P = 2L + 2W$)
A) 44 m
B) 16 m
C) 38 m
D) 22 m
Answer: D

220) Find the grade point average (GPA) of a student with 6 credits with a grade of A, 9 credits with a grade of B, 24 credits with a grade of C, 36 credits with a grade of D, and 40 credits with a grade of F.
A) 1.17
B) 0.97
C) 1.31
D) 1.80
Answer: A

221) Find the grade point average (GPA) of a student with 32 credits with a grade of A, 36 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.
A) 3.14
B) 2.91
C) 3.18
D) 2.98
Answer: C

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: $r = \dfrac{A}{2\pi h + 2\pi r}$. Is this an acceptable solution? Explain.
Answer: No. The variable r should not appear on both sides of the equation in the solution.

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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.

Answer: No. The variable t should not appear on both sides of the equation in the solution.

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?

A) $\frac{2A - B}{h}$

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

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

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

Answer: A

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?

A) $\frac{V}{\frac{1}{3}\pi r^2}$

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

C) $\frac{3V}{\pi r^2}$

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

Answer: B

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 120 cubic units. Give two sets of possible dimensions for the solid.

Answer: Answers will vary, but the product of the three dimensions must be 120.

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?

A) Area

B) Perimeter

Answer: B

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

A) Perimeter

B) Area

Answer: B

Convert the length as indicated.

229) 120 inches to feet

A) 10 ft

B) 360 ft

C) 40 ft

D) 0.83 ft

Answer: A

230) 3.1 miles to feet

A) 454.67 ft

B) 1364 ft

C) 5456 ft

D) 16,368 ft

Answer: D

231) 15,840 feet to miles

A) 4 mi

B) 79.2 mi

C) 3 mi

D) 3.5 mi

Answer: C

232) 8 feet to inches

A) 96 in.

B) 32 in.

C) 24 in.

D) 288 in.

Answer: A

233) 20 yards to feet

A) 60 ft

B) 720 ft

C) 240 ft

D) 180 ft

Answer: A

234) 33 feet to yards

A) 396 yd

B) $2\frac{3}{4}$ yd

C) 28 yd

D) 11 yd

Answer: D

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235) 18 yards to inches

A) 6 in.
B) 648 in.
C) 216 in.
D) 54 in.

Answer: B

236) $5\frac{1}{2}$ feet to inches

A) 16.5 in.
B) 66 in.
C) 67.5 in.
D) 60 in.

Answer: B

237) 1.02 meters to centimeters

A) 0.102 cm
B) 102 cm
C) 10.2 cm
D) 0.0102 cm

Answer: B

238) 75.90 meters to millimeters

A) 0.0759 mm
B) 0.759 mm
C) 7590 mm
D) 75,900 mm

Answer: D

239) 852 millimeters to centimeters

A) 85.2 cm
B) 8520 cm
C) 85,200 cm
D) 8.5 cm

Answer: A

240) 543 centimeters to meters

A) 5430 m
B) 54.3 m
C) 5.43 m
D) 54,300 m

Answer: C

241) 64.17 meters to kilometers

A) 0.6417 km
B) 6417 km
C) 0.06417 km
D) 64,170 km

Answer: C

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242) 32.20 millimeters to meters
A) 3220 m
B) 0.0322 m
C) 0.322 m
D) 32,200 m

Answer: B

Convert the given length as indicated. Round the answer as indicated.

243) 85.2 inches to centimeters (Round to two decimal places.)
A) 1022.4 cm
B) 7.07 cm
C) 216.41 cm
D) 33.57 cm

Answer: C

244) 83 kilometers to miles (Round to two decimal places.)
A) 24.9 mi
B) 133.63 mi
C) 51.46 mi
D) 210.82 mi

Answer: C

245) 85 yards to meters (Round to two decimal places.)
A) 77.98 m
B) 278.8 m
C) 25.91 m
D) 92.65 m

Answer: A

246) 21.3 meters to yards (Round to two decimal places.)
A) 19.54 yd
B) 6.49 yd
C) 23.22 yd
D) 69.86 yd

Answer: C

247) 5000 yards to kilometers [yards → meters → kilometers] (Round to two decimal places.)
A) 5.45 km
B) 4.59 km
C) 0.22 km
D) 4,587,155.96 km

Answer: B

248) 1400 meters to miles [meters →kilometers → miles] (Round to two decimal places.)
A) 868000 mi
B) 1.15 mi
C) 2.26 mi
D) 0.87 mi

Answer: D

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249) 3.3 meters to inches [meters → centimeters → inches] (Round to one decimal place.)

A) 8.4 in.
B) 118.8 in.
C) 129.9 in.
D) 3.6 in.

Answer: C

250) 3.3 feet to centimeters [feet → inches → centimeters] (Round to one decimal place.)

A) 8.4 cm
B) 83.8 cm
C) 129.9 cm
D) 100.6 cm

Answer: D

251) 50 feet to meters [feet → yards → meters] (Round to one decimal place.)

A) 45.5 m
B) 164.0 m
C) 16.7 m
D) 15.3 m

Answer: D

Convert the area as indicated.

252) 7 square feet to square inches

A) 0.5833 in^2
B) 1008 in^2
C) 84 in^2
D) 168 in^2

Answer: B

253) 27 square feet to square inches

A) 324 in^2
B) 3888 in^2
C) 648 in^2
D) 2.2500 in^2

Answer: B

254) 30 square yards to square feet

A) 1080 ft^2
B) 270 ft^2
C) 10.0000 ft^2
D) 90 ft^2

Answer: B

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255) 1152 square inches to square feet

A) 96 ft^2

B) 8 ft^2

C) 165,888 ft^2

D) 13,824 ft^2

Answer: B

256) 432 square inches to square feet

A) 36 ft^2

B) 5184 ft^2

C) 3 ft^2

D) 62,208 ft^2

Answer: C

257) 45 square feet to square yards

A) 15 yd^2

B) 405 yd^2

C) 135 yd^2

D) 5 yd^2

Answer: D

258) 4.95 square kilometers to square meters

A) 4,950,000 m^2

B) 49,500 m^2

C) 4950 m^2

D) 495,000 m^2

Answer: A

259) 163 square centimeters to square meters

A) 0.163 m^2

B) 0.0163 m^2

C) 16.3 m^2

D) 1.63 m^2

Answer: B

260) 0.091 square meter to square centimeters

A) 9100 cm^2

B) 910 cm^2

C) 91 cm^2

D) 9.1 cm^2

Answer: B

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261) 158.6 square millimeters to square centimeters

A) 15.86 cm^2

B) 1.586 cm^2

C) 1586 cm^2

D) 0.1586 cm^2

Answer: B

262) 9.89 square centimeters to square millimeters

A) 98.9 mm^2

B) 98,900 mm^2

C) 9890 mm^2

D) 989 mm^2

Answer: D

263) 0.069 square meter to square millimeters

A) 69 mm^2

B) 690 mm^2

C) 6900 mm^2

D) 69,000 mm^2

Answer: D

Convert the capacity as indicated.

264) 232 ounces to cups

A) 464 c

B) 58 c

C) 116 c

D) 29 c

Answer: D

265) 28 quarts to gallons

A) 14 gal

B) 112 gal

C) 56 gal

D) 7 gal

Answer: D

266) 8 cups to pints

A) 64 pt

B) 4 pt

C) 32 pt

D) 16 pt

Answer: B

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267) 22 pints to cups

A) 176 c
B) 88 c
C) 11 c
D) 44 c

Answer: D

268) $18\frac{1}{2}$ gallons to quarts

A) 36 qt
B) 148 qt
C) 74 qt
D) 72 qt

Answer: C

269) 12 quarts to gallons (Express the answer as a mixed number.)

A) 24 gal
B) 3 gal
C) 12 gal
D) 6 gal

Answer: B

270) 0.4 gallon to ounces

A) 12.8 oz
B) 51.2 oz
C) 25.6 oz
D) 4.8 oz

Answer: B

271) 12 liters to milliliters

A) 12,000 ml
B) 1.2 ml
C) 1200 ml
D) 0.012 ml

Answer: A

272) 0.31 liter to milliliters

A) 0.031 ml
B) 31 ml
C) 310 ml
D) 0.00031 ml

Answer: C

273) 45 milliliters to liters

A) 4500 L
B) 0.045 L
C) 45,000 L
D) 0.45 L

Answer: B

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274) 0.705 milliliter to liters
A) 70.5 L
B) 705 L
C) 0.00705 L
D) 0.000705 L
Answer: D

Convert the capacity as indicated. Round the answer as indicated.

275) 418 milliliters to ounces (Round to two decimal places.)
A) 108.68 oz
B) 1584.22 oz
C) 12,360.26 oz
D) 14.14 oz
Answer: D

276) 4 liters to quarts (Round to two decimal places.)
A) 1.04 qt
B) 15.16 qt
C) 4.24 qt
D) 3.8 qt
Answer: C

277) 73 quarts to liters (Round to two decimal places.)
A) 276.67 L
B) 68.87 L
C) 77.38 L
D) 18.98 L
Answer: B

278) 50 liters to gallons [liters → quarts → gallons] (Round to one decimal place.)
A) 11.8 gal
B) 13.3 gal
C) 53.0 gal
D) 22.5 gal
Answer: B

279) 44 liters to pints [liters → quarts → pints] (Round to one decimal place.)
A) 83.2 pt
B) 105.6 pt
C) 93.3 pt
D) 40.0 pt
Answer: C

280) 41.91 liters to gallons [liters → quarts → gallons] (Round to one decimal place.)
A) 39.8 gal
B) 44.4 gal
C) 158.4 gal
D) 11.1 gal
Answer: D

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Convert the mass as indicated.

281) 0.5 pound to ounces

A) 10 oz
B) 12 oz
C) 8 oz
D) 6 oz

Answer: C

282) 6000 pounds to tons (Express the answer as a mixed number.)

A) 6 T
B) 4 T
C) 3 T
D) $2\frac{2}{5}$ T

Answer: C

283) 896 ounces to pounds

A) 224 lb
B) 89 lb
C) 57 lb
D) 56 lb

Answer: D

284) 4.48 tons to pounds

A) 896 lb
B) 0.00224 lb
C) 8960 lb
D) 0.0224 lb

Answer: C

285) 32,000 ounces to tons

A) 2 T
B) 1.0 T
C) 16 T
D) 2000 T

Answer: B

286) $14\frac{1}{4}$ pounds to ounces

A) 228 oz
B) 232 oz
C) 456 oz
D) 114 oz

Answer: A

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287) $12\frac{1}{2}$ pounds to ounces

A) 100 oz
B) 200 oz
C) 400 oz
D) 50 oz

Answer: B

288) 53 kilograms to grams

A) 5300 g
B) 0.53 g
C) 53,000 g
D) 0.053 g

Answer: C

289) 148 milligrams to grams

A) 148,000 g
B) 14,800 g
C) 1.48 g
D) 0.148 g

Answer: D

290) 372 grams to milligrams

A) 0.372 mg
B) 0.0372 mg
C) 37,200 mg
D) 372,000 mg

Answer: D

291) 828 milligrams to kilograms

A) 82,800 kg
B) 828,000 kg
C) 0.000828 kg
D) 0.0828 kg

Answer: C

292) 3.3 grams to kilograms

A) 0.0033 kg
B) 330 kg
C) 3300 kg
D) 0.00033 kg

Answer: A

Convert the mass as indicated. Round the answer as indicated.

293) 520 grams to ounces (Round to two decimal places when necessary.)

A) 17.59 oz
B) 15,376.4 oz
C) 14,742 oz
D) 18.34 oz

Answer: D

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294) 8 ounces to grams (Round to two decimal places when necessary.)
A) 17.6 g
B) 3.6 g
C) 0.32 g
D) 226.8 g
Answer: D

295) 52 kilograms to pounds (Round to two decimal places when necessary.)
A) 114.4 lb
B) 23.4 lb
C) 132.08 lb
D) 55.12 lb
Answer: A

296) 61 pounds to kilograms (Round to two decimal places when necessary.)
A) 134.2 kg
B) 154.94 kg
C) 64.66 kg
D) 27.727245 kg
Answer: D

297) 0.8 kilogram to ounces [kilograms → grams → ounces] (Round to one decimal place.)
A) 17.6 oz
B) 1.8 oz
C) 36.0 oz
D) 28.2 oz
Answer: D

Convert as indicated. Express the answer in decimal form when needed.

298) 360 seconds to minutes
A) 11 min
B) 6 min
C) 3 min
D) 15 min
Answer: B

299) 360 minutes to hours
A) 3 hours
B) 144 hours
C) 6 hours
D) 15 hours
Answer: C

300) 5 days to hours
A) 60 hr
B) 35 hr
C) 300 hr
D) 120 hr
Answer: D

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301) 216 hours to days
A) 9 days
B) 72 days
C) 63 days
D) 108 days
Answer: A

302) 4 weeks to days
A) 28 days
B) 96 days
C) 56 days
D) 240 days
Answer: A

303) 8 minutes to seconds
A) 96 sec
B) 192 sec
C) 240 sec
D) 480 sec
Answer: D

304) 0.9 hours to seconds
A) 1800 sec
B) 3240 sec
C) 54 sec
D) 360 sec
Answer: B

305) 2 days to minutes
A) 2880 min
B) 7200 min
C) 172,800 min
D) 48 min
Answer: A

306) 2 days to seconds
A) 2880 sec
B) 7200 sec
C) 172,800 sec
D) 432,000 sec
Answer: C

307) 7305 weeks to years
A) 20.01
B) 140
C) 379,860
D) 140.48
Answer: B

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308) 73,080 minutes to weeks
A) 50.75
B) 725
C) 435
D) 7.25
Answer: D

Convert as indicated. Round when indicated.

309) 240 inches per second to feet per second
A) 20 ft/sec
B) 1.67 ft/sec
C) 720 ft/sec
D) 80 ft/sec
Answer: A

310) 36,960 feet per hour to miles per hour
A) 8 mi/hr
B) 7 mi/hr
C) 7.5 mi/hr
D) 184.8 mi/hr
Answer: B

311) 480 feet per second to feet per minute
A) 8 ft/min
B) 4 ft/min
C) 20 ft/min
D) 15 ft/min
Answer: A

312) 7 miles per day to miles per hour
A) 168 mi/hr
B) 49 mi/hr
C) 84 mi/hr
D) 420 mi/hr
Answer: A

313) 7 inches per minute to inches per second
A) 210 in./sec
B) 420 in./sec
C) 168 in./sec
D) 84 in./sec
Answer: B

314) 12 kilometers per minute to meters per hour
A) 5000 m/hr
B) 720,000 m/hr
C) 0.72 m/hr
D) 200 m/hr
Answer: B

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315) 220 feet per second to miles per hour
A) 16 mi/hr
B) 150 mi/hr
C) 160 mi/hr
D) 15 mi/hr

Answer: B

316) 159 feet per second to meters per second (Round to one decimal place.)
A) 53.0 ft/sec
B) 176.7 ft/sec
C) 477 ft/sec
D) 48.5 ft/sec

Answer: D

317) 5 meters per second to feet per second (Round to one decimal place.)
A) 15 m/sec
B) 16.4 m/sec
C) 1.7 m/sec
D) 1.5 m/sec

Answer: B

318) 54 miles per hours to kilometers per hour (Round to three decimal places.)
A) 30.000 km/hr
B) 87.097 km/hr
C) 97.686 km/hr
D) 33.561 km/hr

Answer: B

319) 62 kilometers per hour to miles per hour (Round to three decimal places.)
A) 93.558 mi/hr
B) 38.440 mi/hr
C) 99.758 mi/hr
D) 44.702 mi/hr

Answer: B

Solve the problem.

320) A restaurant serves 8 ounces of soup to each customer. How many quarts of soup should be prepared in order to serve 13 customers? (Express the answer as a mixed number.)
A) $6\frac{1}{2}$ qt
B) $5\frac{1}{4}$ qt
C) $3\frac{1}{4}$ qt
D) $4\frac{1}{4}$ qt

Answer: C

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321) How much will it cost to carpet a 15–foot by 25–foot room if carpeting costs $16.00 per square yard?
A) $500.00
B) $666.67
C) $6000.00
D) $2000.00

Answer: B

322) The stone is a unit of weight in the Imperial system of measurement. One stone is equivalent to 14 pounds. If a person weighs 147 pounds, find his weight in stones.
A) 14 stones 7 lb
B) 2 stones 6 lb
C) 10 stones 7 lb
D) 5 stones 7 lb

Answer: C

323) There are 6 liters of juice in the fridge and Maria drinks 800 milliliters of the juice. How much juice, in milliliters, remains?
A) 5200 L
B) 59,200 mL
C) 6800 mL
D) 5200 mL

Answer: D

324) One–half serving of soy sauce contains 370 milligrams of sodium. How many grams of sodium from soy sauce are included in an egg–foo–young dish made from 4 servings of soy sauce? Round to the nearest tenth of a gram.
A) 0.1 g
B) 148.0 g
C) 3.0 g
D) 92.5 g

Answer: C

325) A serving of snack crackers contains 2 grams of protein in each 31 gram serving. How many milligrams of protein are in 4 servings?
A) 800 mg
B) 248 mg
C) 8000 mg
D) 24,800 mg

Answer: C

326) A painting in a museum is 150 centimeters wide. Convert this width to inches. Round answer to the nearest hundredth, if necessary.
A) 492 in.
B) 45.73 in.
C) 59.06 in.
D) 381 in.

Answer: C

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327) A punch recipe calls for 4 gallons of juice. How many liters is that? Round to the nearest tenth of a liter. (gallons → quarts → liters)
A) 4.2 L
B) 1 L
C) 15.1 L
D) 3.8 L

Answer: C

328) A redwood tree is 108.9 meters tall. Convert this to feet. Round to the nearest hundredth of a foot. (meters → yards → feet)
A) 356.10 ft
B) 33.20 ft
C) 276.61 ft
D) 118.70 ft

Answer: A

329) An investigating officer examining skid marks at the scene of an accident estimates the speed of the vehicle to have been 92 feet per second. Was the driver exceeding the 55 miles per hour speed limit?
A) No. The driver was traveling 52 mi/hr.
B) Yes. The driver was traveling 63 mi/hr.

Answer: B

330) An investigating officer examining skid marks at the scene of an accident estimates the speed of the vehicle to have been 77 feet per second. Was the driver exceeding the 55 miles per hour speed limit?
A) Yes. The driver was traveling 59 mi/hr.
B) No. The driver was traveling 53 mi/hr.

Answer: B

331) Jarod calculated the speed of a train to be 35 feet per second. Calculate the speed in miles per hour. Round to the nearest whole number.
A) 20 mi/hr
B) 27 mi/hr
C) 21 mi/hr
D) 24 mi/hr

Answer: D

332) A cheetah can run at a speed of approximately 68 miles per hour. Calculate this speed in feet per minute.
A) 6009 ft/min
B) 5954 ft/min
C) 2040 ft/min
D) 5984 ft/min

Answer: D

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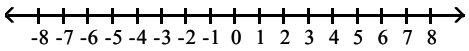
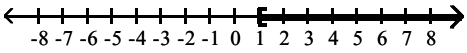
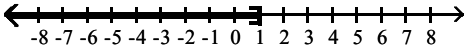
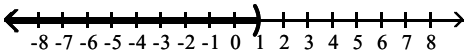
Graph the inequality.

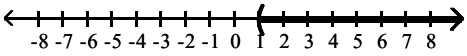
333) $x > 1$



A) 

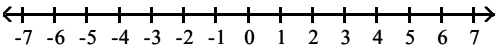
B) 

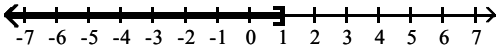
C) 

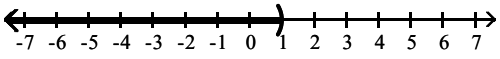
D) 

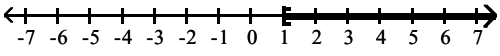
Answer: D

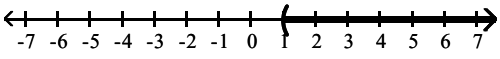
334) $x < 1$



A) 

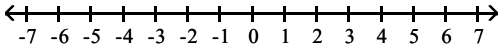
B) 

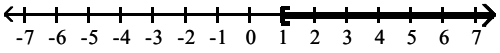
C) 

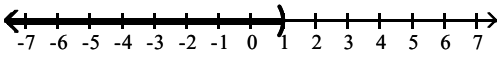
D) 

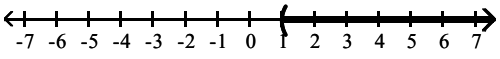
Answer: B

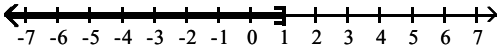
335) $x \geq 1$



A) 

B) 

C) 

D) 

Answer: A

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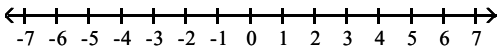
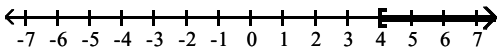
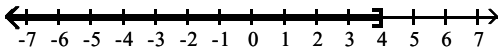
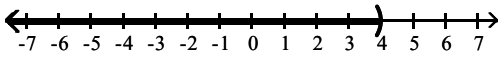
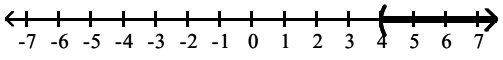
336) $x \leq 4$



A) 

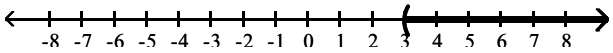
B) 

C) 

D) 

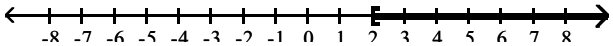
Answer: B

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

337) 

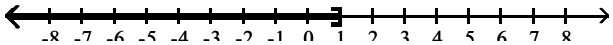
A) $x > 3$
B) $x < 3$
C) $x \geq 3$
D) $x \leq 3$

Answer: A

338) 

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

Answer: A

339) 

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

Answer: D

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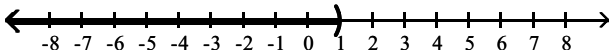
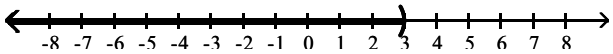
340)



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

Answer: A

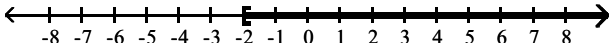
341)



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

Answer: B

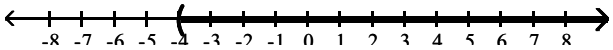
342)



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

Answer: A

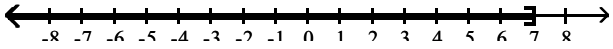
343)



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

Answer: D

344)



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

Answer: C

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Write the solution set to the inequality in interval notation.

345) $x \geq 9$

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

Answer: D

346) $x > 16$

A) $(-\infty, 16)$
B) $[16, \infty)$
C) $(16, \infty)$
D) $(-\infty, 16]$

Answer: C

347) $x > -6$

A) $(-\infty, -6)$
B) $[-6, \infty)$
C) $(-\infty, -6]$
D) $(-6, \infty)$

Answer: D

348) $x \geq -21$

A) $(-\infty, -21]$
B) $(-\infty, -21)$
C) $[-21, \infty)$
D) $(-21, \infty)$

Answer: C

349) $x < 9$

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

Answer: A

350) $x \leq 21$

A) $(-\infty, 21)$
B) $[21, \infty)$
C) $(21, \infty)$
D) $(-\infty, 21]$

Answer: D

351) $x \leq -9$

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

Answer: B

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352) $x < -10$

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

Answer: B

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

353) $4 + x \leq 7, x = 3$

A) No
B) Yes

Answer: B

354) $-4x \geq 10, x = 4$

A) Yes
B) No

Answer: B

355) $7x + 8 > 29, x = 9$

A) No
B) Yes

Answer: B

356) $6(x - 4) \geq 6 - 9(x - 8), x = -3$

A) No
B) Yes

Answer: B

357) $-(4 - x) \geq -2(x + 3) - 1, x = -1$

A) Yes
B) No

Answer: A

358) $\frac{2}{5}x - \frac{1}{3} \leq x + \frac{1}{10}, x = \frac{3}{5}$

A) No
B) Yes

Answer: A

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.

359) $2x + 4 \geq 18$

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

Answer:

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

; $x \geq 7$

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360) $-3x + 5 > 2$

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

Answer:

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

; $x < 1$

361) $-2x + 7 \leq 3$

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

Answer:

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

; $x \geq 2$

362) $4 + x < 3x + 2$

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

Answer:

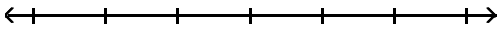
x	-1	0	1	2	3
$4 + x$	3	4	5	6	7
$3x + 2$	-1	2	5	8	11

; $x > 1$

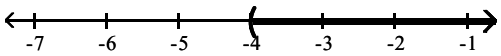
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

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

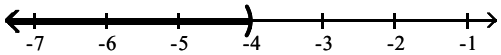
363) $a + 1 < -3$



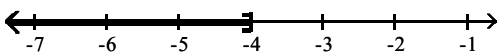
A) $\{a \mid a > -4\}$



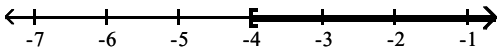
B) $\{a \mid a < -4\}$



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



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



Answer: B

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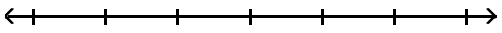
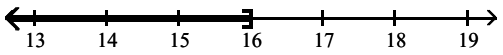
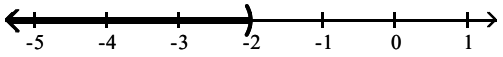
364) $12n + 9 > 11n + 7$



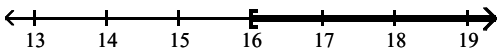
A) $\{n \mid n \leq 16\}$



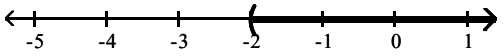
B) $\{n \mid n < -2\}$



C) $\{n \mid n \geq 16\}$

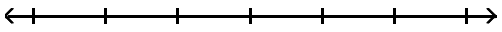


D) $\{n \mid n > -2\}$

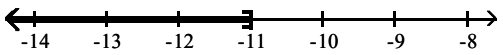


Answer: D

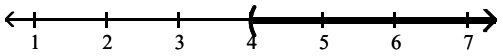
365) $4t + 2 \geq 3t - 9$



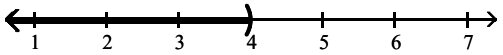
A) $\{t \mid t \leq -11\}$



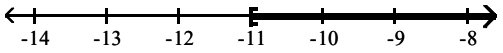
B) $\{t \mid t > 4\}$



C) $\{t \mid t < 4\}$



D) $\{t \mid t \geq -11\}$



Answer: D

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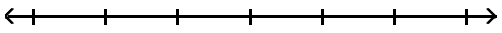
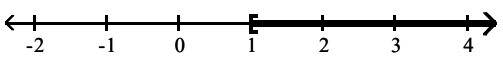
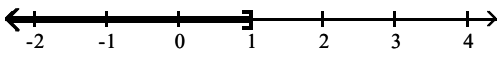
366) $f - 2 < -1$



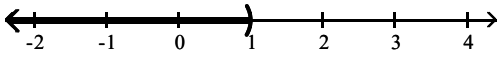
A) $\{f \mid f \geq 1\}$



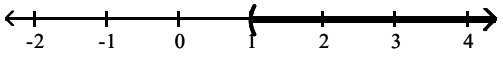
B) $\{f \mid f \leq 1\}$



C) $\{f \mid f < 1\}$



D) $\{f \mid f > 1\}$

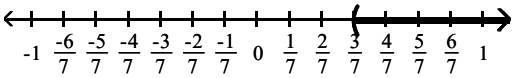


Answer: C

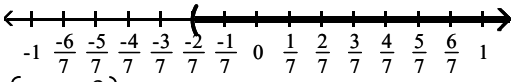
367) $x + \frac{2}{21} > \frac{8}{21}$



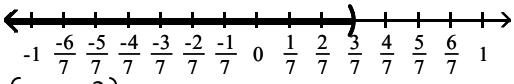
A) $\left\{x \mid x > \frac{2}{7}\right\}$



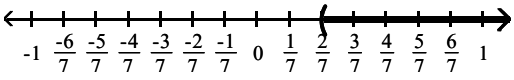
B) $\left\{x \mid x > -\frac{2}{7}\right\}$



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



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



Answer: D

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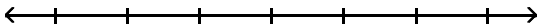
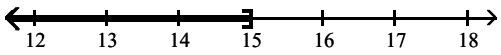
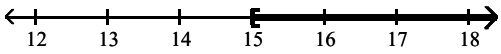
368) $\frac{a}{5} \geq 3$



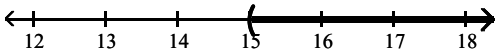
A) $\{a \mid a \leq 15\}$



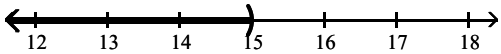
B) $\{a \mid a \geq 15\}$



C) $\{a \mid a > 15\}$

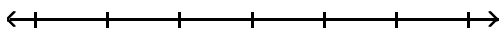


D) $\{a \mid a < 15\}$

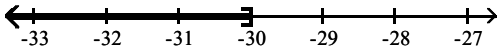


Answer: B

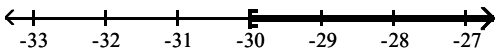
369) $-5 < \frac{x}{6}$



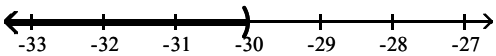
A) $\{x \mid x \leq -30\}$



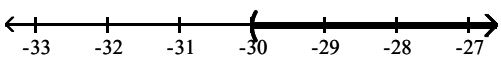
B) $\{x \mid x \geq -30\}$



C) $\{x \mid x < -30\}$



D) $\{x \mid x > -30\}$



Answer: D

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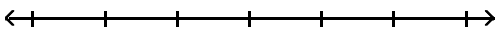
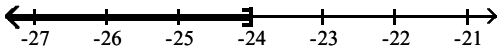
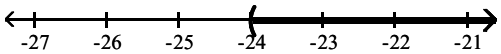
370) $-4 \geq \frac{b}{6}$



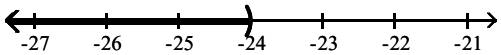
A) {b | b ≤ −24}



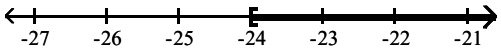
B) {b | b > −24}



C) {b | b < −24}

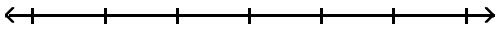


D) {b | b ≥ −24}

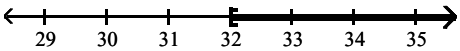


Answer: A

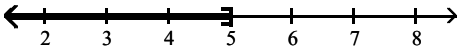
371) $8x \geq 40$



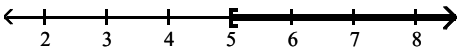
A) {x | x ≥ 32}



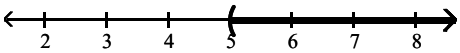
B) {x | x > 5}



C) {x | x ≥ 5}



D) {x | x > 5}



Answer: C

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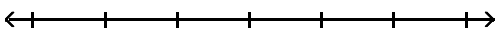
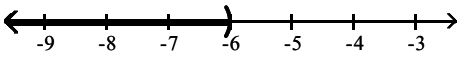
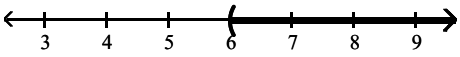
372) $-3x > 18$



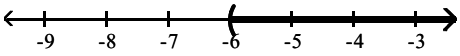
A) $\{x \mid x < -6\}$



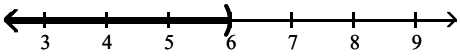
B) $\{x \mid x > 6\}$



C) $\{x \mid x > -6\}$



D) $\{x \mid x < 6\}$



Answer: A

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

373) $-4 - 3x - 12 \geq -4x - 15$

A) $\{x \mid x > -3\}$
B) $\{x \mid x \geq 1\}$
C) $\{x \mid x \leq 1\}$
D) $\{x \mid x < -3\}$

Answer: B

374) $0.6x + 11 + x > 2x + 10 - 0.5x$

A) $\{x \mid x < 1\}$
B) $\{x \mid x > -10\}$
C) $\{x \mid x \geq 1\}$
D) $\{x \mid x < -10\}$

Answer: B

375) $\frac{x}{2} + 12 \leq 8$

A) $\{x \mid x \leq -8\}$
B) $\{x \mid x < -6\}$
C) $\{x \mid x \geq -8\}$
D) $\{x \mid x \leq 6\}$

Answer: A

376) $30n - 42 \leq 6(4n + 2)$

A) $\{n \mid n > 9\}$
B) $\{n \mid n \geq 9\}$
C) $\{n \mid n \leq 9\}$
D) $\{n \mid n < 9\}$

Answer: C

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377) $9(x + 7) - 17x < 1(-6x - 8) - 3x$

A) $\{x \mid x < -71\}$
B) $\{x \mid x > 71\}$
C) $\{x \mid x > -71\}$
D) $\{x \mid x < 71\}$

Answer: A

378) $\frac{9}{10}(x + 5) > \frac{3}{5}(x + 8)$

A) $\{x \mid x < 1\}$
B) $\{x \mid x > 1\}$
C) $\{x \mid x < -1\}$
D) $\{x \mid x > -1\}$

Answer: B

379) $3(2x - 6) \leq 24$

A) $\{x \mid x \leq 5\}$
B) $\{x \mid x \geq 7\}$
C) $\{x \mid x < 5\}$
D) $\{x \mid x \leq 7\}$

Answer: D

380) $4(t + 7) < 12(t - 2)$

A) $\left\{x \mid x < \frac{13}{2}\right\}$
B) $\left\{x \mid x > \frac{13}{3}\right\}$
C) $\left\{x \mid x > \frac{13}{2}\right\}$
D) $\left\{x \mid x > \frac{9}{2}\right\}$

Answer: C

381) $\frac{5}{6}(9x + 8) \geq 13$

A) $\left\{x \mid x \geq \frac{26}{15}\right\}$
B) $\left\{x \mid x < \frac{38}{45}\right\}$
C) $\left\{x \mid x \geq \frac{38}{45}\right\}$
D) $\left\{x \mid x \geq \frac{38}{5}\right\}$

Answer: C

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382) $\frac{3}{5}(5x - 9) - \frac{3}{4} < \frac{1}{4}$

A) $\left\{x \middle| x > \frac{32}{15}\right\}$

B) $\left\{x \middle| x < \frac{32}{15}\right\}$

C) $\left\{x \middle| x < \frac{14}{5}\right\}$

D) $\left\{x \middle| x < \frac{32}{3}\right\}$

Answer: B

Translate the sentence to an algebraic inequality.

383) A number is greater than 10.

A) $x \leq 10$

B) $x \geq 10$

C) $x > 10$

D) $x < 10$

Answer: C

384) A number is less than or equal to 6.

A) $x \leq 6$

B) $x < 6$

C) $x > 6$

D) $x \geq 6$

Answer: A

385) John weighs at least 91 pounds.

A) $x > 91$

B) $x \leq 91$

C) $x < 91$

D) $x \geq 91$

Answer: D

386) The cost is no more than $818.39.

A) $x < 818.39$

B) $x \geq 818.39$

C) $x \leq 818.39$

D) $x > 818.39$

Answer: C

387) The number of people at a concert is not to exceed 3790.

A) $x < 3790$

B) $x \geq 3790$

C) $x \leq 3790$

D) $x > 3790$

Answer: C

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

Solve the problem.

389) One side of a rectangle is 7 inches and the other side is x inches. What values of x will make the perimeter at least 38?
A) $0 < x \leq 12$
B) $x \leq 12$
C) $x \geq 12$
D) $x < 12$
Answer: C

390) One side of a rectangle is 10 inches and the other side is x inches. Find the value of x if the area must be at least 90 square inches.
A) $x \geq 9$
B) $x = 9$
C) $x \leq 9$
D) $0 < x \leq 9$
Answer: A

391) 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 8 ft, what is the maximum height of the triangular sign?
A) 5 ft
B) 32 ft
C) 2.5 ft
D) 1.25 ft
Answer: A

392) The equation $y = 0.002x - 0.10$ 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 $4783?
A) $x \geq 2{,}391{,}550$
B) $0 < x \leq 2{,}391{,}549$
C) $x \leq 2{,}391{,}550$
D) $x \geq 2{,}391{,}450$
Answer: A

393) 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?
A) 1997 or after
B) 1973 or after
C) 1999 or after
D) 1998 or after
Answer: D

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394) A car rental company has two rental rates. Rate 1 is $54 per day plus $.12 per mile. Rate 2 is $108 per day plus $.06 per mile. If you plan to rent for one week, how many miles would you need to drive to pay less by taking Rate 2?

A) more than 6300 miles
B) more than 88,200 miles
C) more than 22,050 miles
D) more than 44,800 miles

Answer: A

395) Jim has gotten scores of 95 and 81 on his first two tests. What score must he get on his third test to keep an average of 85 or greater?

A) At least 87.0
B) At least 88
C) At least 78
D) At least 79

Answer: D

396) Jon has 758 points in his math class. He must have 76% of the 1200 points possible by the end of the term to receive credit for the class. What is the minimum number of additional points he must earn by the end of the term to receive credit for the class?

A) 912 points
B) 154 points
C) 576 points
D) 442 points

Answer: B

397) DG's Plumbing and Heating charges $50 plus $75 per hour for emergency service. Bill remembers being billed just over $450 for an emergency call. How long to the nearest hour was the plumber at Bill's house?

A) 5 hours
B) 17 hours
C) 13 hours
D) 7 hours

Answer: A

398) A 6–pound puppy is gaining weight at a rate of $\frac{2}{3}$ lb per week. How much more time will it take for the puppy's weight to exceed $31\frac{2}{3}$ lb?

A) more than $56\frac{1}{2}$ weeks

B) more than $38\frac{1}{2}$ weeks

C) more than $19\frac{1}{4}$ week(s)

D) more than $39\frac{1}{2}$ weeks

Answer: B

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Answer the question or solve the problem.

399) True or False? If $x < 6$ then $-3x < -18$.

A) True

B) False

Answer: B

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

A) True

B) False

Answer: A

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

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

Answer: When multiplying or dividing by a negative number.

402) In solving the inequality $9x \leq -36$, would you have to reverse the inequality symbol? Explain why.

Answer: 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.)

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

Answer: 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.)

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

Answer: Yes. Adding a positive or negative number to both sides of an inequality produces an equivalent inequality. (Explanations will vary.)

405) If $a \leq b$, is it always true that $-9a \leq -9b$? Explain.

Answer: No..Multiplying an inequality by a negative number requires reversing the inequality symbol. (Explanations will vary.)

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