Test Bank for Algebra A Combined Approach 5th Martin Gay

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

Solve the equation.

1) $b + 17 = 19$

A) 36
B) –2
C) –36
D) 2

Answer: D

2) $-16 = b - 8$

A) 24
B) –24
C) 8
D) –8

Answer: D

3) $t - 7 = 18$

A) –25
B) 25
C) 11
D) –11

Answer: B

4) $\frac{1}{3} + x = 3$

A) $\frac{8}{3}$

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

C) $\frac{10}{3}$

D) 8

Answer: A

5) $x + \frac{1}{9} = \frac{8}{9}$

A) 1
B) $\frac{7}{8}$

C) $\frac{7}{9}$

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

Answer: C

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6) $x - \frac{1}{4} = \frac{3}{4}$

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

B) 1

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

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

Answer: B

7) $x + \frac{1}{4} = -\frac{3}{20}$

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

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

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

D) $-\frac{33}{80}$

Answer: B

8) $x - 2.6 = 18.7$

A) 21.3

B) 16.1

C) 15.6

D) 20.8

Answer: A

9) $y - 19.5 = -6.4$

A) 25.9

B) 25.4

C) 13.1

D) 12.6

Answer: C

10) $x - 7.8 = 19$

A) 11.2

B) 10.7

C) 26.3

D) 26.8

Answer: D

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

11) $8x - 7x + 6 = 6$

A) 0
B) 6
C) 12
D) –6

Answer: A

12) $10y = 5y + 4 + 4y$

A) 40
B) 4
C) –40
D) –4

Answer: B

13) $-2a + 2 + 3a = 12 - 29$

A) 43
B) –19
C) –43
D) 19

Answer: B

14) $-6b + 5 + 4b = -3b + 10$

A) 5
B) 10
C) –10
D) –5

Answer: A

15) $-4x - 19 + 5x = -2$

A) 21
B) 17
C) –17
D) –21

Answer: B

16) $-29 + 7 = 7x + 4 - 6x$

A) –40
B) –26
C) 40
D) 26

Answer: B

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17) $-3x + 7 + 8x + 2 = 1$

A) $\frac{6}{5}$

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

C) $-\frac{8}{5}$

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

Answer: C

18) $3(y - 6) = 4y - 18$

A) 18
B) –18
C) 0
D) –36

Answer: C

19) $5x + 8 = 6(x + 4)$

A) 32
B) 16
C) –32
D) –16

Answer: D

20) $4(4x + 4) + 5 = 13x - 3$

A) –72
B) 8
C) –8
D) –24

Answer: C

21) $2x = 7(2x + 5)$

A) $\frac{35}{2}$

B) $-\frac{35}{12}$

C) $\frac{12}{35}$

D) $\frac{35}{12}$

Answer: B

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22) $4(9x - 3) = 8x - 6$

A) $\frac{3}{22}$

B) $\frac{9}{14}$

C) $\frac{3}{14}$

D) $-\frac{3}{14}$

Answer: C

23) $-12(x + 3) = 9(x - 4)$

A) -3

B) 0

C) all real numbers

D) $\varnothing$

Answer: B

24) $4(x + 6) = 5(x - 2)$

A) 14

B) 34

C) all real numbers

D) $\varnothing$

Answer: B

25) $(x - 6) - (x + 8) = 5x$

A) $-\frac{7}{2}$

B) $-\frac{7}{3}$

C) $-\frac{14}{5}$

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

Answer: C

26) $-6(k - 7) - (-7k - 4) = 6$

A) -9

B) -40

C) 52

D) 40

Answer: B

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27) $\frac{2}{3}x + \frac{1}{6} = -\frac{1}{3}x - \frac{1}{8}$

A) $-\frac{1}{7}$

B) $\frac{1}{24}$

C) $-\frac{7}{24}$

D) $\frac{7}{24}$

Answer: C

28) $-8.6 + 3x - 6.1 + 2x - 2.8 = 5.7 + 6x + 1.2$

A) 10.6
B) 24.4
C) −24.4
D) −10.6

Answer: C

Write the algebraic expression described.

29) Two numbers have a sum of 57. If one number is q, express the other number in terms of q.

A) 57 − 2q
B) 57 − q
C) q + 57
D) q − 57

Answer: B

30) A 60−centimeter piece of rope is cut into two pieces. If one piece is z centimeters long, express the other length as an algebraic expression in z.

A) (60 − 2z) cm
B) (z + 60) cm
C) (60 − z) cm
D) (z − 60) cm

Answer: C

31) In the race for Student Body President, Jose received 416 more votes than Angela. If Angela received x votes, how many votes did Jose receive?

A) (x − 416) votes
B) (416x) votes
C) (x + 416) votes
D) (416 − x) votes

Answer: C

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32) During a walk–a–thon, Rosilyn walked 14 fewer laps than June walked. If June walked b laps, how many laps did Rosilyn walk?

A) (b – 14) laps

B) $\left(\frac{b}{14}\right)$ laps

C) (b + 14) laps

D) (14 – b) laps

Answer: A

33) The sum of the angles of a triangle is 180°. If one angle of a triangle measures x° and a second angle measures (6x + 10)°, express the measure of the third angle in terms of x.

A) (170 + 7x)°

B) (190 – 7x)°

C) (170 – 7x)°

D) (170 – 6x)°

Answer: C

34) A quadrilateral is a four–sided figure whose angle sum is 360°. If one angle measures x°, a second angle measures 3x°, and a third angle measures 6x°, express the measure of the fourth angle in terms of x.

A) (10x – 360)°

B) (360 – 10x)°

C) (360 + 10x)°

D) (360 – 9x)°

Answer: B

Solve the equation.

35) $\frac{1}{3}x = -9$

A) –27

B) –6

C) –7

D) –3

Answer: A

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

A) 0

B) –16

C) 1

D) 16

Answer: A

37) $\frac{n}{5} = 2$

A) 7

B) 10

C) 0

D) 6

Answer: B

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38) $5a = -40$

A) -45
B) 45
C) 1
D) -8

Answer: D

39) $-31.5 = -6.3c$

A) 25.2
B) 5
C) 2
D) -25.2

Answer: B

40) $-2x = -16$

A) 2
B) 14
C) -14
D) 8

Answer: D

41) $\frac{6}{7}d = -\frac{8}{9}$

A) $-\frac{27}{28}$

B) $\frac{28}{27}$

C) $-\frac{28}{27}$

D) $-\frac{56}{9}$

Answer: C

42) $\frac{n}{3} = 7$

A) 9
B) 10
C) 2
D) 21

Answer: D

43) $\frac{5}{8}k = -\frac{5}{2}$

A) 1
B) 13
C) 12
D) -4

Answer: D

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44) $-z = 10$

A) 0
B) −10
C) 10
D) −1

Answer: B

45) $\frac{x}{9} + 4 = 8$

A) 36
B) 13
C) 108
D) 110

Answer: A

46) $-4x + 9x + 2 = -7x$

A) $\frac{1}{6}$
B) 6
C) $-\frac{1}{6}$
D) − 1

Answer: C

47) $8r + 7 = 87$

A) 3
B) 76
C) 10
D) 72

Answer: C

48) $9n - 2 = 16$

A) 9
B) 13
C) 2
D) 3

Answer: C

49) $74 = -7x + 4$

A) 14
B) 81
C) 77
D) −10

Answer: D

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

A) 21
B) −19
C) 19
D) −21

Answer: B

51) $\frac{1}{6}f - 4 = 1$

A) 18
B) −30
C) −18
D) 30

Answer: D

52) $4x - 11x = 31 - 17$

A) 2
B) −2
C) −7
D) 7

Answer: B

53) $8x - x = 9 - 72$

A) 9
B) 7
C) −7
D) −9

Answer: D

54) $-9x + 2 + 8x - 8 = 8$

A) − 18
B) − 14
C) $-\frac{14}{17}$
D) 14

Answer: B

55) $0.5x - 0.8x - 7 = 11$

A) 60
B) −55.33
C) −60
D) 55.33

Answer: C

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Write the algebraic expression described.

56) If x represents the first of three consecutive even integers, express the sum of the three integers in terms of x.

A) 3x + 3
B) x + 6
C) 3x + 6
D) 3x + 12

Answer: C

57) If x represents the first of four consecutive odd integers, express the sum of the first integer and the fourth integer in terms of x.

A) 2x + 8
B) 2x + 6
C) 4x + 12
D) 2x + 3

Answer: B

58) If x is the first of three consecutive integers, express the sum of 36 and the third integer as an algebraic expression in terms of x.

A) x + 37
B) x + 38
C) 2x + 38
D) x + 36

Answer: B

Solve the equation.

59) $6x - (3x - 1) = 2$

A) $-\frac{1}{3}$

B) $\frac{1}{9}$

C) $\frac{1}{3}$

D) $-\frac{1}{9}$

Answer: C

60) $4(2x - 1) = 16$

A) $\frac{17}{8}$

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

C) $\frac{15}{8}$

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

Answer: D

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61) $(y - 5) - (y + 8) = 4y$

A) $-\frac{13}{3}$

B) 1

C) $-\frac{13}{4}$

D) $-\frac{13}{5}$

Answer: C

62) $2p = 6(5p + 4)$

A) $\frac{6}{7}$

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

C) $\frac{7}{6}$

D) 12

Answer: B

63) $14(3c - 4) = 7c - 8$

A) $\frac{64}{35}$

B) $\frac{48}{35}$

C) $\frac{48}{49}$

D) $-\frac{48}{35}$

Answer: B

64) $4(y + 3) = 5(y - 4)$

A) -8

B) 32

C) 8

D) -32

Answer: B

65) $5(2z - 5) = 9(z + 5)$

A) 20

B) -20

C) 70

D) 25

Answer: C

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66) $7p = 6(5p + 6)$

A) $\frac{36}{23}$

B) $\frac{36}{7}$

C) $-\frac{36}{23}$

D) $\frac{23}{36}$

Answer: C

67) $4(2z - 5) = 7(z + 3)$

A) –1

B) 5

C) 1

D) 41

Answer: D

68) $7x + 4(-3x - 6) = -20 - 9x$

A) – 1

B) $\frac{22}{7}$

C) – 11

D) 1

Answer: D

69) $\frac{f}{7} - 5 = 1$

A) –28

B) 28

C) 42

D) –42

Answer: C

70) $\frac{2x}{5} - \frac{x}{3} = 4$

A) –60

B) 120

C) 60

D) –120

Answer: C

71) $\frac{3}{2}x + \frac{6}{5} = \frac{7}{5}x$

A) –12

B) –26

C) 26

D) 12

Answer: A

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

A) 13
B) 11
C) –13
D) –11

Answer: D

73) $\frac{b}{15} - 5 = -4$

A) –15
B) 17
C) –17
D) 15

Answer: D

74) $\frac{4(7 - x)}{3} = x$

A) $\frac{28}{5}$

B) 4
C) –4
D) 7

Answer: B

75) $\frac{3(y - 2)}{5} = 1 - 3y$

A) $\frac{7}{6}$

B) $\frac{11}{18}$

C) $-\frac{11}{18}$

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

Answer: B

Write the algebraic expression described. Simplify if possible.

76) Two numbers have a sum of 28. If one number is q, express the other number in terms of q.

A) q + 28
B) 28 – q
C) q – 28
D) 28 – 2q

Answer: B

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77) A 20–centimeter piece of rope is cut into two pieces. If one piece is z centimeters long, express the other length as an algebraic expression in z.

A) (z – 20) cm
B) (20 – z) cm
C) (z + 20) cm
D) (20 – 2z) cm

Answer: B

78) In the race for Student Body President, Jose received 194 more votes than Angela. If Angela received x votes, how many votes did Jose receive?

A) (194x) votes
B) (194 – x) votes
C) (x + 194) votes
D) (x – 194) votes

Answer: C

Solve the equation.

79) –0.5m – 6 – 0.5m = 5.1 – 1m – 11.1

A) –16.2
B) 0
C) all real numbers
D) no solution

Answer: C

80) 9x – 3 – 8x + 2 = 7x – 6x – 4

A) –256
B) 0
C) all real numbers
D) no solution

Answer: D

81) 5(x + 3) = (5x + 15)

A) 0
B) 30
C) all real numbers
D) no solution

Answer: C

82) 2(x + 3) – (2x + 6) = 0

A) 3
B) 0
C) all real numbers
D) no solution

Answer: C

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83) $\frac{1}{4}(8x - 12) = 6(\frac{1}{3}x - \frac{1}{2}) + 7$

A) 0
B) $\frac{7}{4}$
C) all real numbers
D) no solution

Answer: D

84) $\frac{x}{6} - 2 = \frac{x}{6}$

A) 0
B) 6
C) all real numbers
D) no solution

Answer: D

85) $2(x + 1) - 1 = 5x - 3(x + 3)$

A) 8
B) –10
C) all real numbers
D) no solution

Answer: D

86) $0.09(6x + 4) = 0.54(x + 7) - 3.42$

A) 0.36
B) –3.42
C) all real numbers
D) no solution

Answer: C

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

87) Four times a number added to 9 times the number equals 52. Find the number.

A) $4x - 9x = 52$; –5.8
B) $4x(9 + x) = 52$; 5.8
C) $4(x + 9) = 52x$; 0.8
D) $4x + 9x = 52$; 4

Answer: D

88) When 2 times a number is subtracted from 7 times the number, the result is 55. Find the number.

A) $2(x - 7) = 55x$; 3.8
B) $2x(7 - x) = 55$; –11
C) $7x - 2x = 55$; 11
D) $2x + 11x = 55$; 5

Answer: C

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89) If 4 times a number is added to –8, the result is equal to 12 times the number. Find the number.

A) $4x + (-8) = 12x;\ -1$

B) $4x + (-8) = 12x;\ 1$

C) $16x - 12x = 8;\ 1$

D) $12(4x - 8) = -8;\ -1$

Answer: A

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

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

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

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

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

Answer: C

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

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

B) $4x + 1 = 2x - 3;\ 2$

C) $4(x + 1) = 2x - 3;\ -\frac{7}{2}$

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

Answer: A

Solve.

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

A) –7

B) 7

C) –17

D) 4

Answer: A

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

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

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

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

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

Answer: C

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94) If the sum of a number and two is doubled, the result is six less than three times the number. Find the number.
A) 10
B) 5
C) 22
D) $\frac{2}{5}$

Answer: A

95) Four times the difference of a number and one is equal to six times the sum of the number and three. Find the number.
A) 11
B) –7
C) –2
D) –11

Answer: D

96) Four times a number, added to 4, is 40. Find the number.
A) 144
B) 9
C) 36
D) –9

Answer: B

97) Nine times a number, added to –35, is 10. Find the number.
A) 405
B) –5
C) 45
D) 5

Answer: D

98) Four times the sum of some number plus 3 is equal to 6 times the number minus 6.
A) 18
B) –9
C) –18
D) 9

Answer: D

99) The difference of a number and 7 is the same as 37 less the number. Find the number.
A) –22
B) –15
C) 22
D) 15

Answer: C

100) Six times some number added to 5 amounts to –22 added to the product of 3 and the number.
A) 9
B) –27
C) 27
D) –9

Answer: D

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101) Seven times the sum of a number and –28 amounts to –42. Find the number.
A) –2
B) –34
C) 22
D) –10

Answer: C

102) A number subtracted from 16 gives the quotient of 90 and 9. Find the number.
A) 6
B) 26
C) 5
D) –794

Answer: A

Solve the problem.

103) The president of a certain university makes three times as much money as one of the department heads. If the total of their salaries is $250,000, find each worker's salary.
A) president's salary = $187,500; department head's salary = $62,500
B) president's salary = $125,000; department head's salary = $62,500
C) president's salary = $62,500; department head's salary = $187,500
D) president's salary = $18,750; department head's salary = $6,250

Answer: A

104) A promotional deal for long distance phone service charges a $15 basic fee plus $0.05 per minute for all calls. If Joe's phone bill was $43 under this promotional deal, how many minutes of phone calls did he make? Round to the nearest integer, if necessary.
A) 1160 min
B) 6 min
C) 560 min
D) 1 min

Answer: C

105) Two angles are complementary if their sum is 90°. If the measure of the first angle is x°, and the measure of the second angle is (3x – 2)°, find the measure of each angle.
A) 1st angle = 31°; 2nd angle = 59°
B) 1st angle = 22°; 2nd angle = 68°
C) 1st angle = 23°; 2nd angle = 67°
D) 1st angle = 22°; 2nd angle = 64°

Answer: C

106) A car rental agency advertised renting a luxury, full–size car for $39.95 per day and $0.49 per mile. If you rent this car for 5 days, how many whole miles can you drive if you only have $200 to spend.
A) 98 mi
B) 40 mi
C) 316 mi
D) 0 mi

Answer: D

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107) A 10–ft. board is cut into 2 pieces so that one piece is 6 feet longer than 3 times the shorter piece. If the shorter piece is x feet long, find the lengths of both pieces.
A) shorter piece: 5 ft; longer piece: 30 ft
B) shorter piece: 18 ft; longer piece: 36 ft
C) shorter piece: 1 ft; longer piece: 9 ft
D) shorter piece: 24 ft; longer piece: 30 ft

Answer: C

108) In a recent International Gymnastics competition, the U.S., China, and Romania were the big winners. If the total number of medals won by each team are three consecutive integers whose sum is 54 and the U.S. won more than China who won more than Romania, how many medals did each team win?
A) U.S.: 56 medals; China: 55 medals; Romania: 54 medals
B) U.S.: 17 medals; China: 16 medals; Romania: 15 medals
C) U.S.: 20 medals; China: 19 medals; Romania: 18 medals
D) U.S.: 19 medals; China: 18 medals; Romania: 17 medals

Answer: D

109) Mary and her brother John collect foreign coins. Mary has three times the number of coins that John has. Together they have 180 foreign coins. Find how many coins Mary has.
A) 126 coins
B) 27 coins
C) 135 coins
D) 45 coins

Answer: C

110) Center City East Parking Garage has a capacity of 252 cars more than Center City West Parking Garage. If the combined capacity for the two garages is 1,214 cars, find the capacity for each garage.
A) Center City East: 481 cars
Center City West: 733 cars
B) Center City East: 733 cars
Center City West: 481 cars
C) Center City East: 743 cars
Center City West: 471 cars
D) Center City East: 471 cars
Center City West: 743 cars

Answer: B

111) During an intramural basketball game, Team A scored 18 fewer points than Team B. Together, both teams scored a total of 142 points. How many points did Team A score during the game?
A) 63 points
B) 71 points
C) 80 points
D) 62 points

Answer: D

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Solve.

112) In a recent International Gymnastics competition, the U.S., China, and Romania were the big winners. If the total number of medals won by each team are three consecutive integers whose sum is 81 and the U.S. won more than China who won more than Romania, how many medals did each team win?

A) U.S.: 83 medals; China: 82 medals; Romania: 81 medals
B) U.S.: 26 medals; China: 25 medals; Romania: 24 medals
C) U.S.: 29 medals; China: 28 medals; Romania: 27 medals
D) U.S.: 28 medals; China: 27 medals; Romania: 26 medals

Answer: D

113) The sum of three consecutive integers is 429. Find the numbers.

A) 142, 143, 144
B) 141, 142, 143
C) 143, 144, 145
D) 141, 143, 145

Answer: A

114) The house numbers of two adjacent homes are two consecutive even numbers. If their sum is 410, find the house numbers.

A) 204, 408
B) 205, 207
C) 204, 206
D) 203, 205

Answer: C

115) The code to unlock a safety deposit box is three consecutive odd integers whose sum is 75. Find the integers.

A) 25, 27, 29
B) 25, 26, 27
C) 23, 25, 27
D) 24, 26, 28

Answer: C

116) You have taken up gardening for relaxation and have decided to fence in your new rectangular shaped masterpiece. The length of the garden is 4 meters and 46 meters of fencing is required to completely enclose it. What is the width of the garden?

A) 11.5 m
B) 19 m
C) 38 m
D) 184 m

Answer: B

117) Ted drove to his grandparents' house for a holiday weekend. The total distance (one–way) was 325 miles and it took him 15 hours. How fast was Ted driving? (Round answer to the nearest whole number)

A) 488 mph
B) 46 mph
C) 22 mph
D) 49 mph

Answer: C

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118) Sally is making a cover for a round table. When finished, the cover will fit exactly with no excess hanging off. Sally has to cut the fabric circle with a 4 inch larger diameter than the table to allow for hemming. If the table has a diameter of 64 inches, how much fabric does Sally need? (Use 3.14 for π. Round to 2 decimal places.)

A) 13,677.84 $in.^2$

B) 4,069.44 $in.^2$

C) 14,519.36 $in.^2$

D) 3,629.84 $in.^2$

Answer: D

119) Use the formula $F = \frac{9}{5}C + 32$ to write 130° C as degrees Fahrenheit.

A) 202° F

B) 266° F

C) 90.6° F

D) 55° F

Answer: B

120) Use the formula $C = \frac{5}{9}(F - 32)$ to write 5° F as degrees Celsius.

A) 20.6° C

B) 41° C

C) –29.2° C

D) –15° C

Answer: D

121) It took Sara's mother 3 hours round trip to drive to the University and bring Sara back home for spring break. If the University is 66 miles from home, find her mother's average speed.

A) 44 mph

B) 22 mph

C) $55\frac{1}{2}$ mph

D) 45 mph

Answer: A

122) You are varnishing the background for a rectangular mural. The base of the mural is $4\frac{1}{2}$ meters and the height of the mural is 5 meters. How many cans of varnish will you need if each can covers 10 square meters?

A) 5 cans of varnish

B) 23 cans of varnish

C) 9 cans of varnish

D) 3 cans of varnish

Answer: D

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Substitute the given values into the formula and solve for the unknown variable.

123) $d = rt$; $t = 4$, $d = 16$

A) 12
B) 4
C) 20
D) 0.3

Answer: B

124) $P = 2L + 2W$; $P = 16$, $W = 4$

A) 8
B) 12
C) 6
D) 4

Answer: D

125) $V = \frac{1}{3}Bh$; $V = 18$, $h = 6$

A) 108
B) 3
C) 24
D) 9

Answer: D

126) $I = prt$; $I = 55.2$, $p = 230$, $r = 0.03$

A) 3.8088
B) 8
C) 0.8
D) 380.88

Answer: B

127) $A = \frac{1}{2}(b + B)h$; $A = 115.5$, $b = 20$, $B = 13$

A) $16\frac{1}{2}$
B) 99
C) 260
D) 7

Answer: D

Solve the equation for the indicated variable.

128) $d = rt$ for t

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

Answer: C

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129) $I = Prt$ for P

A) $P = \frac{r - 1}{It}$

B) $P = \frac{I}{rt}$

C) $P = r - It$

D) $P = \frac{r - I}{1 + t}$

Answer: B

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

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

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

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

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

Answer: C

131) $V = \frac{1}{3}Ah$ for h

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

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

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

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

Answer: A

132) $P = a + b + c$ for c

A) $c = P + a + b$

B) $c = P + a - b$

C) $c = a + b - P$

D) $c = P - a - b$

Answer: D

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

A) $W = P - L$

B) $W = P - 2L$

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

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

Answer: C

134) $A = P + PRT$ for R

A) $R = \frac{PT}{A - P}$

B) $R = \frac{A}{T}$

C) $R = \frac{P - A}{PT}$

D) $R = \frac{A - P}{PT}$

Answer: D

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

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

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

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

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

Answer: B

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

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

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

C) $h = S - r$

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

Answer: A

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137) $A = \frac{1}{2}h(B + b)$ for b

A) $b = 2A - Bh$

B) $b = \frac{A - Bh}{h}$

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

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

Answer: D

Solve. Round to the nearest hundredth, if necessary.

138) 5% of 500 is what number?

A) 0.25
B) 2.5
C) 25
D) 250

Answer: C

139) What number is 86% of 310?

A) 26,660
B) 266.6
C) 2,666
D) 26.66

Answer: B

140) 930 is what percent of 718?

A) 1.3%
B) 0.13%
C) 77.2%
D) 129.53%

Answer: D

141) 3.2 is what percent of 19.6?

A) 612.50%
B) 0.16%
C) 6.13%
D) 16.33%

Answer: D

142) What percent of 182 is 15.0?

A) 0.08%
B) 8.24%
C) 1,213.33%
D) 0.12%

Answer: B

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143) 92 is 60% of what number?

A) 15.33
B) 55.2
C) 153.33
D) 1,533.3

Answer: C

144) 18 is 9% of what number?

A) 162
B) 20
C) 200
D) 2,000

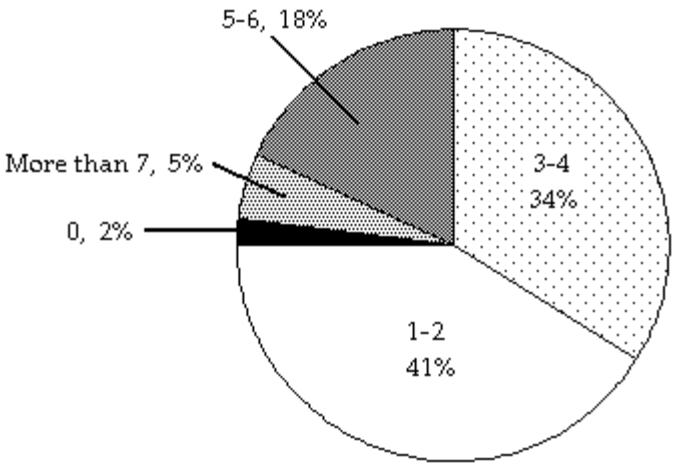
Answer: C

145) 60% of what number is 98?

A) 163.33
B) 58.8
C) 1,633.3
D) 16.33

Answer: A

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



146) What percent of college students consume 5–6 pizzas in a typical month?

A) 34%
B) 18%
C) 41%
D) 5%

Answer: B

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147) If State University has approximately 37,000 students, about how many would you expect to consume 5–6 pizzas in a typical month?
A) 1,258 students
B) 12,580 students
C) 6,660 students
D) 666 students

Answer: C

Solve. Round answers to the nearest cent.

148) A store is advertising a 15% off sale on all new DVD releases. Find the discount of a newly released DVD collectors set that regularly sells for $48.00.
A) $47.28
B) $0.72
C) $7.20
D) $40.80

Answer: C

149) An automobile dealership recently reduced the price of a used sports car by 12%. If the price of the car was $ 37,600.00, find the discount.
A) $33,088.00
B) $4,512.00
C) $451.20
D) $37,148.80

Answer: B

150) A store is advertising 15% off sale on everything in the store. Find the discount of a chair that regularly sells for $170.
A) $167.45
B) $144.50
C) $25.50
D) $2.55

Answer: C

151) A store is advertising 45% off sale on everything in the store. Find the discount of a table that regularly sells for $1,700.
A) $1,623.50
B) $935.00
C) $76.50
D) $765.00

Answer: D

152) A store is advertising a 30% off sale on all new DVD releases. Find the sale price of a newly released DVD collectors set that regularly sells for $61.00.
A) $42.70
B) $1.83
C) $18.30
D) $59.17

Answer: A

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153) An automobile dealership recently reduced the price of a used sports car by 15%. If the price of the car was $ 33,600.00, find the sale price.
A) $28,560.00
B) $504.00
C) $5,040.00
D) $33,096.00

Answer: A

154) A store is advertising 20% off sale on everything in the store. Find the sale price of a painting that regularly sells for $260.
A) $52.00
B) $208.00
C) $5.20
D) $2,548.00

Answer: B

155) A store is advertising 35% off sale on everything in the store. Find the sale price of a sofa that regularly sells for $1,800.
A) $1,737.00
B) $630.00
C) $1,170.00
D) $63.00

Answer: C

156) Jeans are on sale at the local department store for 15% off. If the jeans originally cost $60, find the sale price. (Round to the nearest cent.)
A) $59.10
B) $51.00
C) $69.00
D) $9.00

Answer: B

Solve. Round to the nearest tenth, if necessary.

157) Due to a lack of funding, the number of students enrolled at City College went from 8,000 last year to 2,000 this year. Find the percent decrease in enrollment. (Round to the nearest tenth of a percent, if necessary.)
A) 75%
B) 400%
C) 300%
D) 25%

Answer: A

158) A company increased the number of its employees from 440 to 465. What was the percent increase in employees?
A) 5.4%
B) 94.6%
C) 51.4%
D) 5.7%

Answer: D

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159) The number of video stores in a region recently decreased from 104 to 71. Find the percent decrease.
A) 46.5%
B) 68.3%
C) 31.7%
D) 215.2%

Answer: C

160) In the past ten years, the population of a city decreased from 225,000 to 210,000. Find the percent decrease.
A) 93.3%
B) 6.7%
C) 1,400%
D) 7.1%

Answer: B

Solve.

161) Sales at a local ice cream shop went up 40% in 5 years. If 25,000 ice cream cones were sold in the current year, find the number of ice cream cones sold 5 years ago. (Round to the nearest integer, if necessary.)
A) 15,000 ice cream cones
B) 17,857 ice cream cones
C) 10,000 ice cream cones
D) 62,500 ice cream cones

Answer: B

162) Attendance this year at the homecoming football game is 147% of what it was last year. If last year's homecoming football game attendance was 23,000, what is this year's attendance? (Round to the nearest integer, if necessary.)
A) 338,100 people
B) 156 people
C) 6,391 people
D) 33,810 people

Answer: D

163) How much pure acid should be mixed with 7 gallons of a 50% acid solution in order to get an 80% acid solution?
A) 17.5 gal
B) 10.5 gal
C) 28 gal
D) 3.5 gal

Answer: B

164) A chemist needs 5 liters of a 50% salt solution. All she has available is a 20% salt solution and a 70% salt solution. How much of each of the two solutions should she mix to obtain her desired solution?
A) 1 liters of the 20% solution; 4 liters of the 70% solution
B) 1.5 liters of the 20% solution; 3.5 liters of the 70% solution
C) 2.5 liters of the 20% solution; 2.5 liters of the 70% solution
D) 2 liters of the 20% solution; 3 liters of the 70% solution

Answer: D

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165) The owners of a candy store want to sell, for $6 per pound, a mixture of chocolate–covered raisins, which usually sells for $3 per pound, and chocolate–covered macadamia nuts, which usually sells for $8 per pound. They have a 50–pound barrel of the raisins. How many pounds of the nuts should they mix with the barrel of raisins so that they hit their target value of $6 per pound for the mixture?

A) 80 lbs.
B) 65 lbs.
C) 70 lbs.
D) 75 lbs.

Answer: D

166) The manager of a coffee shop has one type of coffee that sells for $6 per pound and another type that sells for $13 per pound. The manager wishes to mix 30 pounds of the $13 coffee to get a mixture that will sell for $7 per pound. How many pounds of the $6 coffee should be used?

A) 105 pounds
B) 180 pounds
C) 210 pounds
D) 90 pounds

Answer: B

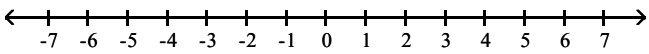
167) The manager of a candy shop sells chocolate covered peanuts for $7 per pound and chocolate covered cashews for $14 per pound. The manager wishes to mix 30 pounds of the cashews to get a cashew–peanut mixture that will sell for $8 per pound. How many pounds of peanuts should be used?

A) 105 pounds
B) 90 pounds
C) 210 pounds
D) 180 pounds

Answer: D

Graph on a number line.

168) $x > 3$



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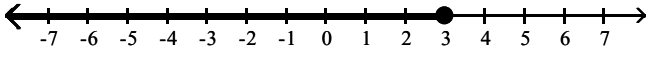

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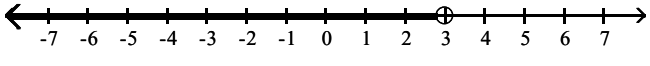

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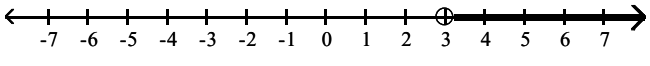

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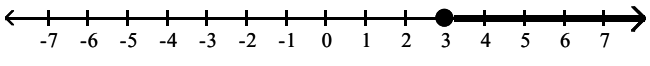

Answer: C

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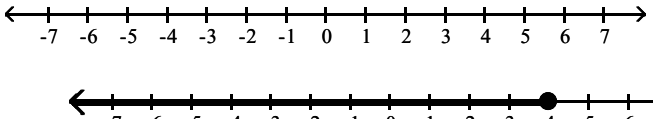
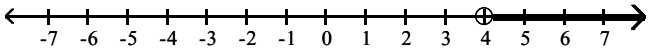
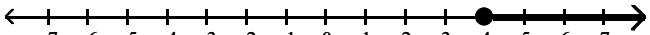
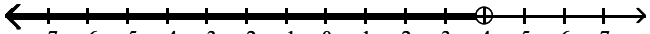
169) $x < 4$



A)

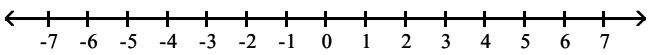
B) 

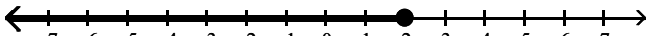
C) 

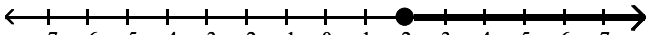
D) 

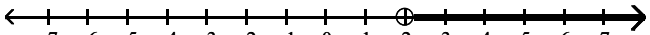
Answer: D

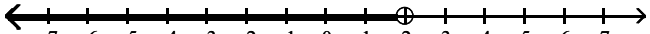
170) $2 \leq x$



A) 

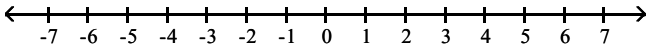
B) 

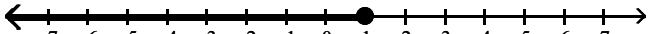
C) 

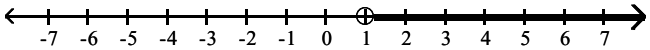
D) 

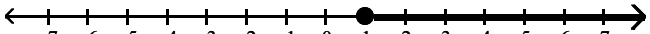
Answer: B

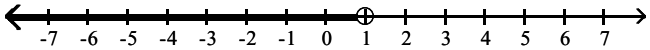
171) $x \leq 1$



A) 

B) 

C) 

D) 

Answer: A

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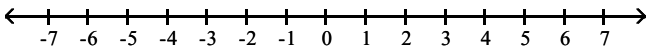
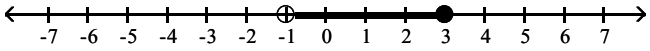
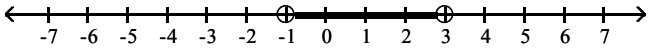
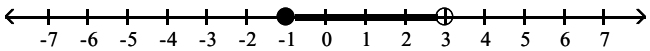
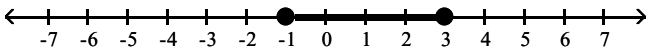
172) $-1 \le x \le 3$



A) 

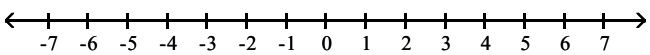
B) 

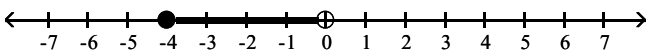
C) 

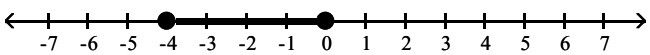
D) 

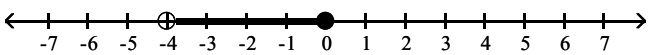
Answer: D

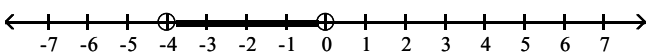
173) $-4 < x < 0$



A) 

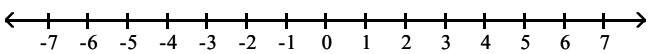
B) 

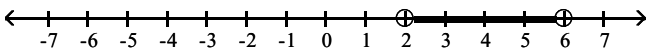
C) 

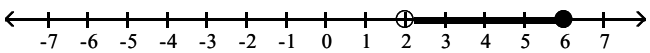
D) 

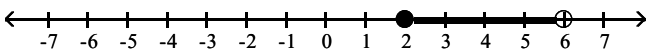
Answer: D

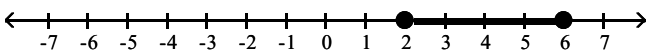
174) $2 \le x < 6$



A) 

B) 

C) 

D) 

Answer: C

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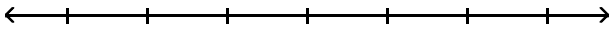
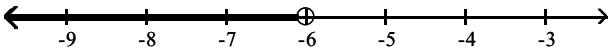
Solve the inequality.

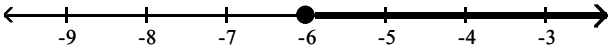
175) $x - 11 < -17$



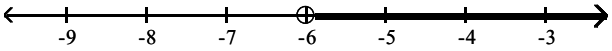
A) $\{x \mid x < -6\}$



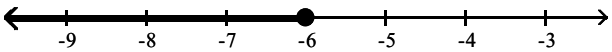
B) $\{x \mid x \geq -6\}$



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

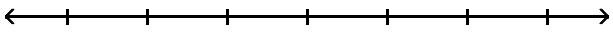


D) $\{x \mid x \leq -6\}$

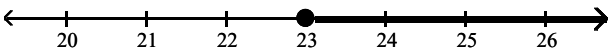


Answer: A

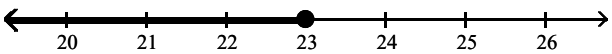
176) $-4x + 12 > -5x + 11$



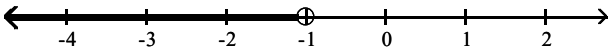
A) $\{x \mid x \geq 23\}$



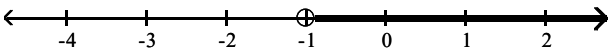
B) $\{x \mid x \leq 23\}$



C) $\{x \mid x < -1\}$



D) $\{x \mid x > -1\}$



Answer: D

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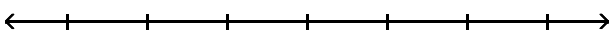
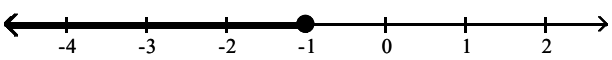
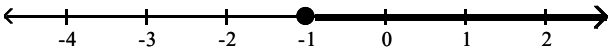
177) $5x - 6 \le 4x - 7$



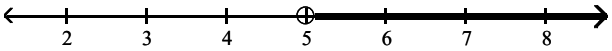
A) $\{x \mid x \le -1\}$



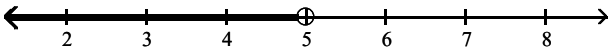
B) $\{x \mid x \ge -1\}$



C) $\{x \mid x > 5\}$

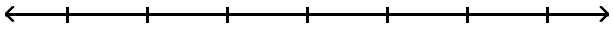


D) $\{x \mid x < 5\}$

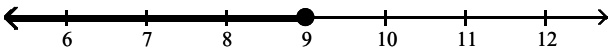


Answer: A

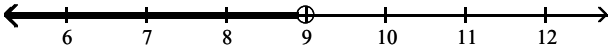
178) $9x - 10 \ge 8x - 1$



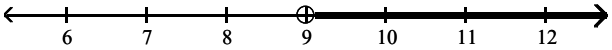
A) $\{x \mid x \le 9\}$



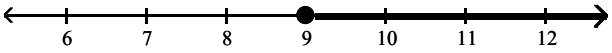
B) $\{x \mid x < 9\}$



C) $\{x \mid x > 9\}$



D) $\{x \mid x \ge 9\}$



Answer: D

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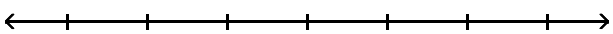
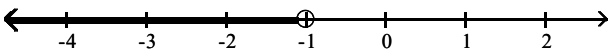
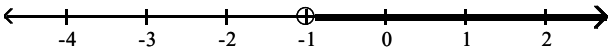
179) $x - 12 < -13$



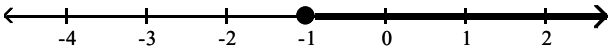
A) $\{x \mid x < -1\}$



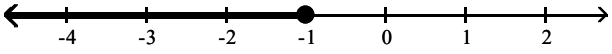
B) $\{x \mid x > -1\}$



C) $\{x \mid x \geq -1\}$

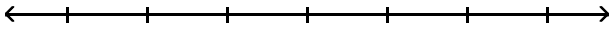


D) $\{x \mid x \leq -1\}$

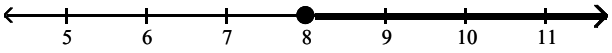


Answer: A

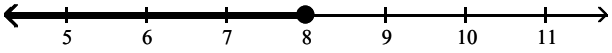
180) $-5 - 5x + 1 \geq -6x + 4$



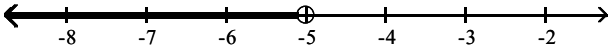
A) $\{x \mid x \geq 8\}$



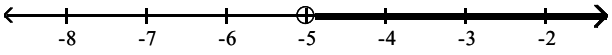
B) $\{x \mid x \leq 8\}$



C) $\{x \mid x < -5\}$



D) $\{x \mid x > -5\}$



Answer: A

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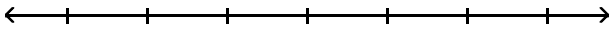
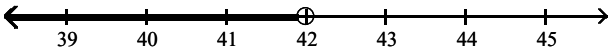
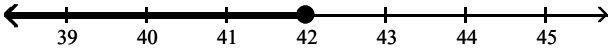
181) $\frac{x}{6} \geq 7$



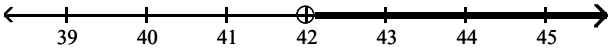
A) $\{x \mid x < 42\}$



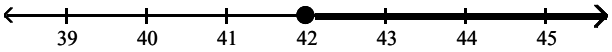
B) $\{x \mid x \leq 42\}$



C) $\{x \mid x > 42\}$

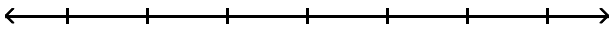


D) $\{x \mid x \geq 42\}$

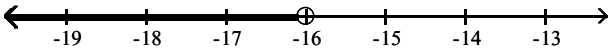


Answer: D

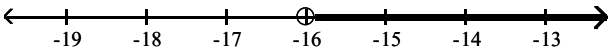
182) $-4 < \frac{y}{4}$



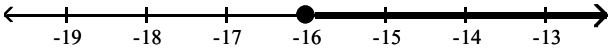
A) $\{y \mid y < -16\}$



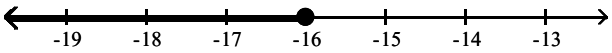
B) $\{y \mid y > -16\}$



C) $\{y \mid y \geq -16\}$



D) $\{y \mid y \leq -16\}$



Answer: B

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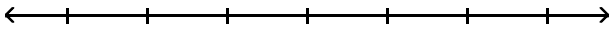
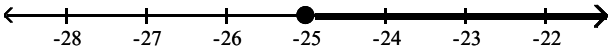
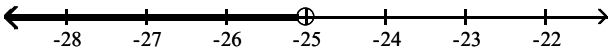
183) $-5 \geq \frac{x}{5}$



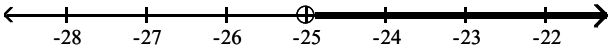
A) $\{x \mid x \geq -25\}$



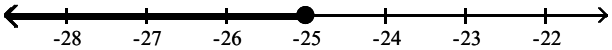
B) $\{x \mid x < -25\}$



C) $\{x \mid x > -25\}$

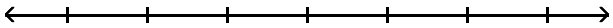


D) $\{x \mid x \leq -25\}$

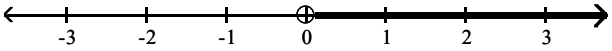


Answer: D

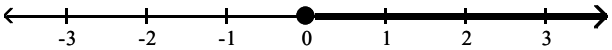
184) $0 < \frac{y}{6}$



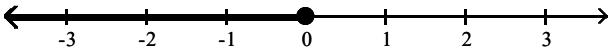
A) $\{y \mid y > 0\}$



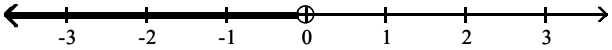
B) $\{y \mid y \geq 0\}$



C) $\{y \mid y \leq 0\}$



D) $\{y \mid y < 0\}$



Answer: A

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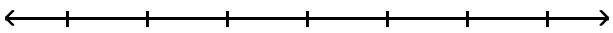
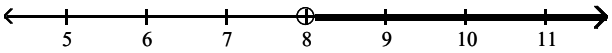
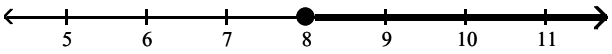
185) $\frac{x}{2} > 4$



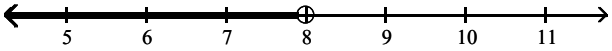
A) $\{x \mid x > 8\}$



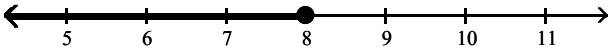
B) $\{x \mid x \geq 8\}$



C) $\{x \mid x < 8\}$

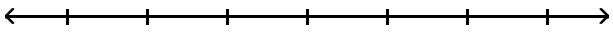


D) $\{x \mid x \leq 8\}$

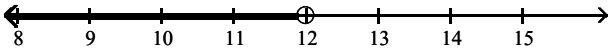


Answer: A

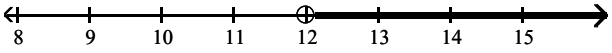
186) $5x > 60$



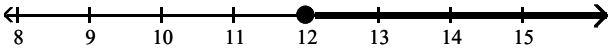
A) $\{x \mid x < 12\}$



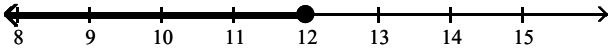
B) $\{x \mid x > 12\}$



C) $\{x \mid x \geq 12\}$



D) $\{x \mid x \leq 12\}$



Answer: B

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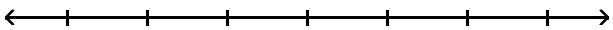
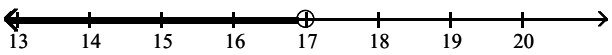
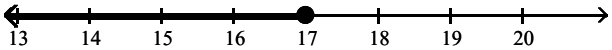
187) $7x \leq 119$



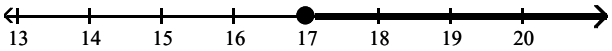
A) $\{x \mid x < 17\}$



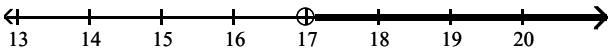
B) $\{x \mid x \leq 17\}$



C) $\{x \mid x \geq 17\}$

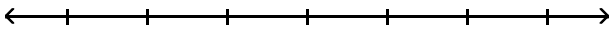


D) $\{x \mid x > 17\}$

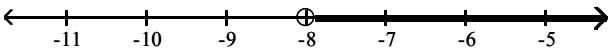


Answer: B

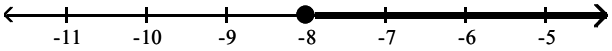
188) $24x + 4 > 4(5x - 7)$



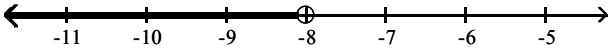
A) $\{x \mid x > -8\}$



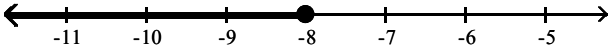
B) $\{x \mid x \geq -8\}$



C) $\{x \mid x < -8\}$



D) $\{x \mid x \leq -8\}$



Answer: A

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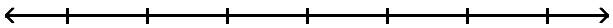
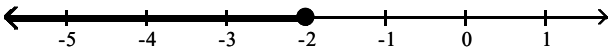
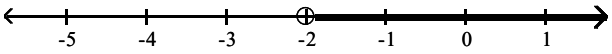
189) $-2(6y - 3) < -14y + 2$



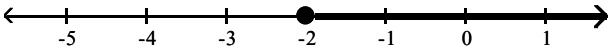
A) $\{y \mid y \leq -2\}$



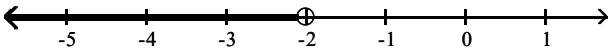
B) $\{y \mid y > -2\}$



C) $\{y \mid y \geq -2\}$

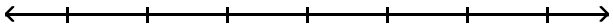


D) $\{y \mid y < -2\}$

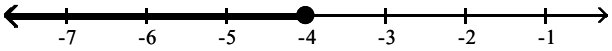


Answer: D

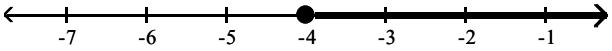
190) $-24x - 54 \leq -6(3x + 5)$



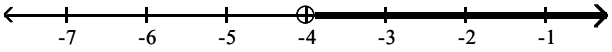
A) $\{x \mid x \leq -4\}$



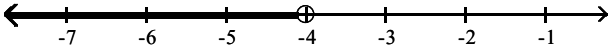
B) $\{x \mid x \geq -4\}$



C) $\{x \mid x > -4\}$



D) $\{x \mid x < -4\}$



Answer: B

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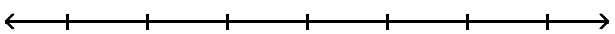
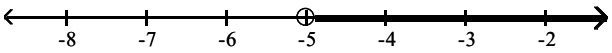
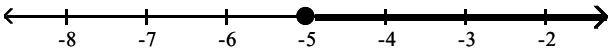
191) $14x + 4 \leq 2(6x - 3)$



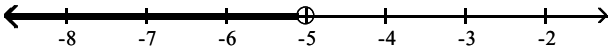
A) $\{x \mid x > -5\}$



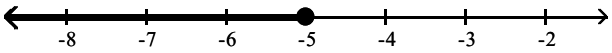
B) $\{x \mid x \geq -5\}$



C) $\{x \mid x < -5\}$

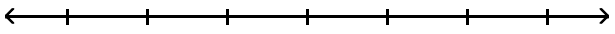


D) $\{x \mid x \leq -5\}$

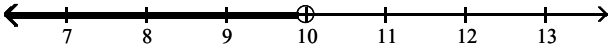


Answer: D

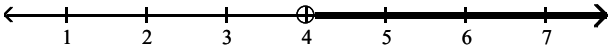
192) $-7x + 6 + 7x < 8 - 2x + 6$



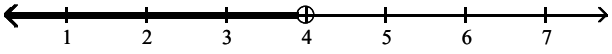
A) $\{x \mid x < 10\}$



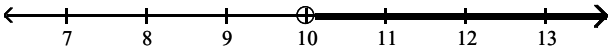
B) $\{x \mid x > 4\}$



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



D) $\{x \mid x > 10\}$



Answer: C

Solve.

193) The area of a rectangle must be at least 84 square feet. If the length is 6 feet, find the minimum for the rectangle's width.

A) $\frac{1}{14}$ ft

B) 14 ft

C) 36 ft

D) 15 ft

Answer: B

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194) Two less than three times a number is less than ten. Find all such numbers.

A) $x < \frac{16}{3}$

B) $x > -\frac{8}{3}$

C) $x < \frac{8}{3}$

D) $x < 4$

Answer: D

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

A) 93
B) 95
C) 94
D) 96

Answer: B

196) A student scored 73, 89, and 96 on three algebra tests. What must he score on the fourth test in order to have an average grade of at least 85?

A) 30
B) 82
C) 86
D) 65

Answer: B

197) A certain vehicle has a weight limit for all passengers and cargo of 1,075 pounds. The four passengers in the vehicle weigh an average of 155 pounds. Use an inequality to find the maximum weight of the cargo that the vehicle can handle.

A) at most $\frac{215}{31}$ pounds

B) at most 455 pounds
C) at most 920 pounds

D) at most $\frac{1075}{2}$ pounds

Answer: B

198) A certain store has a fax machine available for use by its customers. The store charges $2.05 to send the first page and $0.50 for each subsequent page. Use an inequality to find the maximum number of pages that can be faxed for $7.05

A) at most 14 pages
B) at most 51 pages
C) at most 11 pages
D) at most 3 pages

Answer: C

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199) An archer has $165 to spend on a new archery set. A certain set containing a bow and three arrows costs $65. With the purchase of this set, he can purchase additional arrows for $10 per arrow. Use an inequality to find the maximum number of arrows he could obtain, including those with the set, for his $165.

A) at most 10 arrows

B) at most $\frac{33}{2}$ arrows

C) at most $\frac{33}{13}$ arrows

D) at most 13 arrows

Answer: D

200) When making a long distance call from a certain pay phone, the first three minutes of a call cost $2.15. After that, each additional minute or portion of a minute of that call costs $0.45. Use an inequality to find the maximum number of minutes one can call long distance for $9.80.

A) at most 5 minutes

B) at most 17 minutes

C) at most 22 minutes

D) at most 20 minutes

Answer: D

201) It takes 26 minutes to set up a candy making machine. Once the machine is set up, it produces 12 candies per minute. Use an inequality to find the number of candies that can be produced in 8 hours if the machine has not yet been set up.

A) at most 96 candies

B) at most 12,168 candies

C) at most 5,448 candies

D) at most 2,496 candies

Answer: C

202) A standard train ticket in a certain city costs $1.50 per ride. People who use the train also have the option of purchasing a frequent rider pass for $15.75 each month. With the pass, a ticket costs only $0.75 per ride. Use an inequality to determine the number of train rides in a month for which purchasing the monthly pass is more economical than purchasing the standard train ticket.

A) 21 or more times

B) 23 or more times

C) 20 or more times

D) 22 or more times

Answer: D

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

no solution	**all real numbers**	**linear equation in one variable**
equivalent equations	**formula**	**reversed**
linear inequality in one variable	**the same**	

203) A(n) _____ can be written in the form ax + b = c.

A) linear equation in one variable

B) formula

C) reversed

D) linear inequality in one variable

Answer: A

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204) Equations that have the same solution are called _____.

A) equivalent equations
B) the same
C) reversed
D) all real numbers

Answer: A

205) An equation that describes a known relationship among quantities is called a(n) _____.

A) formula
B) no solution
C) linear inequality in one variable
D) linear equation in one variable

Answer: A

206) A(n) _____ can be written in the form $ax + b < c$, (or $>$, $\leq$, $\geq$).

A) linear inequality in one variable
B) formula
C) reversed
D) linear equation in one variable

Answer: A

207) The solution(s) to the equation $x + 5 = x + 5$ is/are _____.

A) all real numbers
B) reversed
C) no solution
D) the same

Answer: A

208) The solution(s) to the equation $x + 5 = x + 4$ is/are _____.

A) all real numbers
B) no solution
C) the same
D) reversed

Answer: B

209) If both sides of an inequality are multiplied or divided by the same positive number, the direction of the inequality symbol is _____.

A) all real numbers
B) reversed
C) no solution
D) the same

Answer: D

210) If both sides of an inequality are multiplied by the same negative number, the direction of the inequality symbol is _____.

A) reversed
B) no solution
C) the same
D) all real numbers

Answer: A

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Solve the equation.

211) $-\frac{1}{6}x = 4$

A) −24
B) −1
C) −3
D) −2

Answer: A

212) $3(2z - 5) = 5(z + 2)$

A) 5
B) −5
C) 25
D) −2

Answer: C

213) $-8b + 3 + 6b = -3b + 8$

A) −8
B) −3
C) 5
D) 8

Answer: C

214) $7x + 9 + 6x - 7 = 2x + 11x - 1$

A) 192
B) 0
C) all real numbers
D) no solution

Answer: D

215) $\frac{3(x + 2)}{4} = x + 5$

A) 14
B) −17
C) 1
D) −14

Answer: D

216) $\frac{4(y + -2)}{5} = 2y - 3$

A) $\frac{23}{6}$

B) $-\frac{23}{6}$

C) $\frac{7}{6}$

D) $-\frac{7}{6}$

Answer: C

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217) $\frac{1}{3} - x + \frac{11}{3} = x - 10$

A) 7
B) 21
C) –3
D) –7

Answer: A

218) $\frac{1}{2}(y + 2) = 6y$

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

B) $-\frac{2}{11}$

C) $-\frac{11}{2}$

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

Answer: A

219) $-0.3(x - 7) + x = 0.5(9 - x)$

A) 12
B) 1.33
C) 2
D) 5.5

Answer: C

220) $3x + 2(2x - 2) = 11 - 8x$

A) $\frac{7}{15}$

B) – 1
C) – 7
D) 1

Answer: D

221) $-3(x + 5) + 70 = 2x - 5(x - 7)$

A) no solution
B) 105
C) all real numbers
D) 35

Answer: A

Solve the application.

222) The difference of a number and 7 is the same as 47 less the number. Find the number.

A) 20
B) –27
C) 27
D) –20

Answer: C

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223) A canvas for a mural is in the shape of a right triangle. Before the mural can be painted, the canvas must be varnished. The base of the mural is 5 meters and the height of the mural is 7 meters. How many cans of varnish will you need if each can covers 10 square meters? The formula for the area of a right triangle is $A = \frac{1}{2}bh$.

A) 7 cans of varnish
B) 4 cans of varnish
C) 2 cans of varnish
D) 18 cans of varnish

Answer: C

Substitute the given values into the formula and solve for the unknown variable.

224) $P = 2L + 2W$; $P = 14$, $W = 4$

A) 7
B) 5
C) 3
D) 10

Answer: C

Solve the equation for the indicated variable.

225) $I = Prt$ for P

A) $P = \frac{r - 1}{It}$

B) $P = \frac{I}{rt}$

C) $P = \frac{r - I}{1 + t}$

D) $P = r - It$

Answer: B

226) $9x - 7y = 14$ for y

A) $y = \frac{9x + 14}{7}$

B) $y = \frac{9x + 14}{-7}$

C) $y = \frac{9x - 14}{7}$

D) $y = \frac{9x - 14}{-7}$

Answer: C

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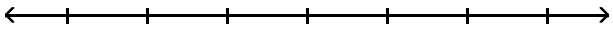
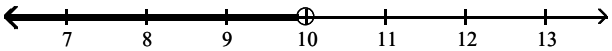
Solve the inequality. Graph the solution set.

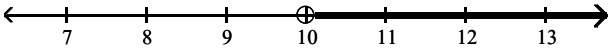
227) $10x + 6 \geq 9x + 13$



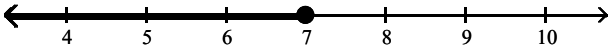
A) $\{x \mid x < 10\}$



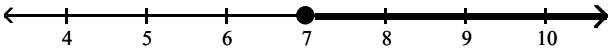
B) $\{x \mid x > 10\}$



C) $\{x \mid x \leq 7\}$

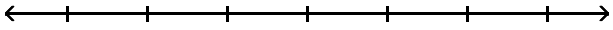


D) $\{x \mid x \geq 7\}$

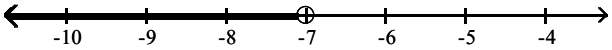


Answer: D

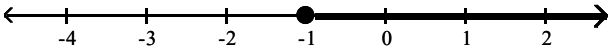
228) $11x + 3 > 10x - 4$



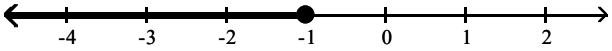
A) $\{x \mid x < -7\}$



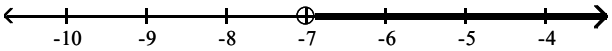
B) $\{x \mid x \geq -1\}$



C) $\{x \mid x \leq -1\}$



D) $\{x \mid x > -7\}$



Answer: D

Solve the inequality.

229) $-0.7x \geq 3.5$

A) $\{x \mid x \geq -5\}$

B) $\{x \mid x \geq -0.5\}$

C) $\{x \mid x \leq -0.5\}$

D) $\{x \mid x \leq -5\}$

Answer: D

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230) $-9(x - 1) + 6 \leq -7(x + 2) + 5$

A) $\{x \mid x \geq -12\}$

B) $\{x \mid x \geq 12\}$

C) $\{x \mid x \geq 24\}$

D) $\{x \mid x \leq 12\}$

Answer: B

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

A) $\left\{x \mid x < \frac{6}{5}\right\}$

B) $\{x \mid x > 1\}$

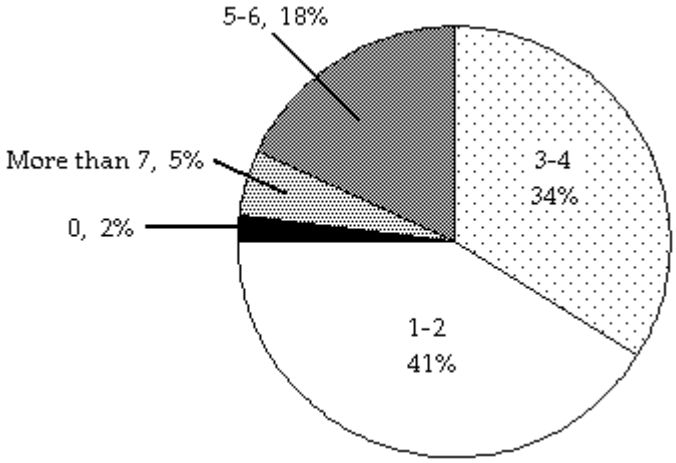
C) $\left\{x \mid x > \frac{6}{5}\right\}$

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

Answer: C

Solve the problem.

232) The circle graph below shows the number of pizzas consumed by college students in a typical month.



If State University has approximately 29,000 students, about how many would you expect to consume 5–6 pizzas in a typical month?

A) 5,220 students

B) 522 students

C) 986 students

D) 9,860 students

Answer: A

233) The number 34 is what percent of 50?

A) 6,800%

B) 6.8%

C) 0.68%

D) 68%

Answer: D

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234) The house numbers of two adjacent homes are two consecutive even numbers. If their sum is 350, find the house numbers.

A) 174, 348
B) 173, 175
C) 175, 177
D) 174, 176

Answer: D

235) There are 16 more sophomores than juniors in an 8 AM algebra class. If there are 96 students in this class, find the number of sophomores and the number of juniors in the class.

A) 56 sophomores; 40 juniors
B) 96 sophomores; 80 juniors
C) 112 sophomores; 80 juniors
D) 40 sophomores; 56 juniors

Answer: A

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