Test Bank for Introductory and Intermediate Algebra 6th Lial

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

Solve the equation.

1) $z - 5 = -2$
A) {3} B) {7} C) {−7} D) {−3}
Answer: A

2) $x + 5 = 8$
A) {−3} B) {−13} C) {3} D) {13}
Answer: C

3) $-24.3 - s = 29.9$
A) {54.2} B) {−54.2} C) {5.6} D) {−5.6}
Answer: B

4) $2 = b + 1$
A) {1} B) {−1} C) {−3} D) {3}
Answer: A

5) $-21 = b - 30$
A) {9} B) {−9} C) {51} D) {−51}
Answer: A

6) $5p + 12 = 6p + 14$
A) {5} B) {−1} C) {−2} D) {−3}
Answer: C

7) $-2m - 7 = -3m - 8$
A) {−1} B) {−7} C) {−2} D) {0}
Answer: A

8) $7.9p - 12 = 8.9p - 3$
A) {−10} B) {−9} C) {−8} D) {7.9}
Answer: B

9) $10y = 6y + 10 + 3y$
A) {100} B) {−10} C) {−100} D) {10}
Answer: D

10) $-5a + 2 + 6a = 12 - 27$
A) {−17} B) {17} C) {41} D) {−41}
Answer: A

11) $-6b + 7 + 4b = -3b + 12$
A) {5} B) {7} C) {−5} D) {−7}
Answer: A

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12) $\frac{2}{11}x + \frac{2}{9} = \frac{1}{2} - \frac{9}{11}x + \frac{1}{2}$

A) $\left\{\frac{5}{18}\right\}$ B) $\left\{-\frac{11}{9}\right\}$ C) $\left\{\frac{11}{9}\right\}$ D) $\left\{\frac{7}{9}\right\}$

Answer: D

13) $2(y + 5) = 3(y - 6)$

A) {8} B) {–8} C) {–28} D) {28}

Answer: D

14) $2(2z - 5) = 3(z + 2)$

A) {4} B) {–4} C) {–2} D) {16}

Answer: D

15) $9(k - 2) - (8k + 1) = 2$

A) {– 21} B) {– 5} C) {– 17} D) {21}

Answer: D

16) $2(2x - 8) - 7(7 - 3x) = 42 + 26x$

A) {–65} B) {–107} C) {–23} D) {–9}

Answer: B

17) $5(3x - 1) + 8(-5 + 2x) = 2(15x + 5) + 6$

A) {0} B) {–29} C) {15} D) {61}

Answer: D

Provide an appropriate response.

18) $2x - 5 = 5 + 7x - 3$

Is this a linear equation?

A) Yes B) No

Answer: A

19) $\frac{-3}{x} = 83$ Is this a linear equation?

A) Yes B) No

Answer: B

20) $5x^2 - 7 = 3x$. Is this a linear equation?

A) Yes B) No

Answer: B

21) Is it true that the equation $-149x + 669 = -304$ and the equation $-149x + 669 + 304 = 0$ are always equivalent equations?

A) True B) False

Answer: A

22) Is it true that the equation $-128x + 52 = 357$ and the equation $x = (52 - 357)/-128$ are equivalent equations?

A) True B) False

Answer: B

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Determine the number by which both sides of the equation must be multiplied or divided, as specified, to obtain just x on the left side.

23) $\frac{2}{3}x = 6$; multiply by

A) $-\frac{2}{3}$ B) 6 C) 9 D) $\frac{3}{2}$

Answer: D

24) $-\frac{2}{3}x = 8$; multiply by

A) 8 B) –3 C) $-\frac{3}{2}$ D) $\frac{2}{3}$

Answer: C

25) $0.9x = 5$; multiply by

A) $\frac{10}{9}$ B) $-\frac{9}{5}$ C) 5 D) 0.9

Answer: A

26) $-x = -0.09$; multiply by

A) 0.09 B) $-\frac{100}{9}$ C) –0.09 D) –1

Answer: D

27) $2x = 1$; divide by

A) $\frac{1}{5}$ B) –2 C) 1 D) 2

Answer: D

28) $-x = -0.07$; divide by

A) $-\frac{100}{7}$ B) –0.07 C) $-\frac{7}{100}$ D) –1

Answer: D

29) $0.2x = 9$; divide by

A) 9 B) 5 C) 0.2 D) 2

Answer: C

Solve the equation.

30) $-9a = 18$

A) {–2} B) {27} C) {1} D) {–27}

Answer: A

31) $-2x = -16$

A) {–14} B) {8} C) {14} D) {2}

Answer: B

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32) $5b = -80$

A) {85} B) {–16} C) {1} D) {–85}

Answer: B

33) $-x = 21$

A) {0} B) {–21} C) {1} D) {21}

Answer: B

34) $-31.5 = -4.5c$

A) {–27.0} B) {27.0} C) {7.0} D) {2.0}

Answer: C

35) $-\frac{1}{5}x = -7$

A) {–13} B) {–12} C) {1} D) {35}

Answer: D

36) $-1 = \frac{1}{2}a$

A) {–1} B) {1} C) {–2} D) {0}

Answer: C

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

A) {0} B) {–22} C) {1} D) {22}

Answer: A

38) $\frac{n}{4} = 13$

A) {17} B) {52} C) {16} D) {3}

Answer: B

39) $\frac{3}{5}y = \frac{2}{7}$

A) $\left\{\frac{10}{7}\right\}$ B) $\left\{-\frac{10}{21}\right\}$ C) $\left\{\frac{21}{10}\right\}$ D) $\left\{\frac{10}{21}\right\}$

Answer: D

40) $1x - 4x = -9$

A) $\{\frac{9}{5}\}$ B) {–3} C) $\{-\frac{9}{5}\}$ D) {3}

Answer: D

41) $2x - 4x - 6x = -32$

A) $\{2\}$ B) {–4} C) $\{-2\}$ D) {4}

Answer: D

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42) $4x + 2 = 8x - 4$

A) $\left\{\frac{3}{2}\right\}$ B) $\left\{-\frac{3}{2}\right\}$ C) $\left\{-\frac{2}{3}\right\}$ D) $\left\{\frac{2}{3}\right\}$

Answer: A

43) $5x - 2x - 3 = -6x$

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

Answer: B

44) $1.4q - 6.7q + 1.1 = -25.4$

A) {4.0} B) {4.2} C) {5} D) {–32}

Answer: C

45) $\frac{2}{5}x - \frac{1}{3}x = 4$

A) {–60} B) {–120} C) {120} D) {60}

Answer: D

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

Provide an appropriate response.

46) What is the difference between an expression and an equation?

Answer: Answers will vary.

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

Answer: Answers will vary.

48) What is the Multiplication Property of Equality?

Answer: Answers will vary.

49) When does the solution of a linear equation not require the use of the Multiplication Property of Equality?

Answer: Answers will vary.

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

50) Which one of the following equations in x doesn't require the use of the multiplication property of equality (a, b, c, and d are real numbers, and x is the unknown)?

A) $a - b + (c - d)x = 0$ B) $x = \frac{c - d}{a - b}$ C) $ax = (b - c)x - d$ D) $\frac{a}{b}x = d - c$

Answer: B

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

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

Answer: Answers will vary. One possibility is: $\frac{5}{13}x = -6$.

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

Answer: Answers will vary. One possibility is $\frac{1}{100}x = 0.136$

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

Solve the equation.

53) $4r + 8 = 28$

A) {16} B) {5} C) {1} D) {20}

Answer: B

54) $3n - 2 = 28$

A) {11} B) {27} C) {31} D) {10}

Answer: D

55) $13 = 5x - 2$

A) {14} B) {4} C) {3} D) {10}

Answer: C

56) $65 = -6x + 5$

A) {70} B) {15} C) {–10} D) {66}

Answer: C

57) $168 = 14x + 14$

A) {144} B) {2} C) {11} D) {140}

Answer: C

58) $-4y + 7 = 3 - 2y$

A) $\left\{-\frac{3}{5}\right\}$ B) $\left\{-\frac{1}{2}\right\}$ C) $\{2\}$ D) $\left\{\frac{1}{2}\right\}$

Answer: C

59) $-4r + 9 = -9 - 5r$

A) $\left\{-\frac{1}{18}\right\}$ B) $\left\{\frac{9}{0}\right\}$ C) $\left\{\frac{1}{18}\right\}$ D) $\{-18\}$

Answer: D

60) $-9b + 8 = 5 - 2b - 6b$

A) $\{3\}$ B) $\left\{-\frac{11}{7}\right\}$ C) $\left\{\frac{1}{3}\right\}$ D) $\left\{-\frac{1}{3}\right\}$

Answer: A

61) $16(x - 64) = 32$

A) {66} B) {62} C) {64} D) {32}

Answer: A

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62) $7x - (3x - 1) = 2$

A) $\left\{\frac{1}{10}\right\}$ B) $\left\{\frac{1}{4}\right\}$ C) $\left\{-\frac{1}{4}\right\}$ D) $\left\{-\frac{1}{10}\right\}$

Answer: B

63) $4(4x - 1) = 16$

A) $\left\{\frac{17}{16}\right\}$ B) $\left\{\frac{3}{4}\right\}$ C) $\left\{\frac{5}{4}\right\}$ D) $\left\{\frac{15}{16}\right\}$

Answer: C

64) $2(x + 7) = (2x + 14)$

A) $\varnothing$ B) {0} C) {all real numbers} D) {28}

Answer: C

65) $2(x + 6) - (2x + 12) = 0$

A) $\varnothing$ B) {6} C) {0} D) {all real numbers}

Answer: D

66) $(y - 8) - (y + 4) = 7y$

A) $\left\{-\frac{3}{7}\right\}$ B) $\left\{-\frac{3}{2}\right\}$ C) $\{-2\}$ D) $\left\{-\frac{12}{7}\right\}$

Answer: D

67) $2(6w + 8) = 2(4w + 24)$

A) {16} B) {4} C) {–4} D) {8}

Answer: D

68) $6(2w - 2) = 4(3w + 2)$

A) {0} B) {20} C) {all real numbers} D) $\varnothing$

Answer: D

Solve the equation by first clearing the fractions.

69) $-\frac{1}{6} + z = \frac{5}{6}$

A) $\left\{\frac{2}{3}\right\}$ B) {1} C) $\left\{-\frac{2}{3}\right\}$ D) {–1}

Answer: B

70) $\frac{1}{3}(r + 6) = \frac{1}{6}(r + 8)$

A) {–12} B) {–4} C) {4} D) {3}

Answer: B

71) $\frac{1}{3}a - \frac{1}{3} = -4$

A) {11} B) {–11} C) {13} D) {–13}

Answer: B

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72) $\frac{1}{2}f - 4 = 1$

A) {–10} B) {10} C) {–6} D) {6}

Answer: B

73) $\frac{2}{5}x - \frac{1}{3}x = 2$

A) {–30} B) {60} C) {30} D) {–60}

Answer: C

74) $\frac{1}{4}p - \frac{3}{8}p = 4$

A) {–128} B) {32} C) {128} D) {–32}

Answer: D

75) $\frac{1}{7}(x + 21) + \frac{1}{3}(x + 3) = x - 1$

A) $\left\{\frac{63}{11}\right\}$ B) $\left\{-\frac{63}{11}\right\}$ C) $\left\{-\frac{21}{11}\right\}$ D) $\left\{\frac{105}{11}\right\}$

Answer: D

76) $\frac{1}{6}y - (y - \frac{3}{5}) = \frac{1}{30}(y - 1)$

A) $\left\{-\frac{17}{26}\right\}$ B) $\left\{-\frac{19}{34}\right\}$ C) $\left\{\frac{19}{26}\right\}$ D) $\left\{\frac{19}{24}\right\}$

Answer: C

77) $-\frac{2}{3}q + 2q = \frac{6}{5}q + \frac{12}{5}$

A) $\left\{\frac{4}{5}\right\}$ B) {0} C) {18} D) $\left\{-\frac{36}{5}\right\}$

Answer: C

78) $\frac{12}{7}x - \frac{1}{21}x = x - \frac{10}{3}$

A) {0} B) $\left\{\frac{10}{21}\right\}$ C) {–5} D) $\left\{-\frac{30}{7}\right\}$

Answer: C

Solve the equation by first clearing the decimals.

79) $0.05(80) + 0.4x = 0.2(80 + x)$

A) {60} B) {30} C) {50} D) {70}

Answer: A

80) $0.7x - 0.6(30 + x) = -0.5(30)$

A) {40} B) {15} C) {30} D) {20}

Answer: C

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81) $0.92x + 0.96(16 - x) = 15.04$

A) {0.08} B) {–0.08} C) {–8} D) {8}

Answer: D

82) $0.02(7000) + 0.04x = 0.035(7000 + x)$

A) {2100} B) {21,000} C) {210} D) {21}

Answer: B

Solve the equation.

83) $-(6y - 3) - (-5y - 8) = -7$

A) {12} B) {–18} C) {–4} D) {18}

Answer: D

84) $0.28(x + 55) + 0.4(x + 70) = -41.6$. (Round to the nearest whole number, if necessary.)

A) {–15} B) {125} C) {–125} D) {15}

Answer: C

85) $3(x + 4) - 10x = -7(x - 8) + 10$

A) ∅ B) {7} C) {0} D) {all real numbers}

Answer: A

86) $12(x - 3) = 2(6x - 3) - 30$

A) {0} B) ∅ C) {–36} D) {all real numbers}

Answer: D

87) $\frac{1}{3}(x + 3) + \frac{5}{6}(x - 2) = x - 3$

A) {–14} B) ∅ C) {14} D) {all real numbers}

Answer: A

Write the answer to the problem as an algebraic expression.

88) Two numbers have a sum of 51. One of the numbers is s. Find the other number.

A) s – 51 B) s + 51 C) 51 – s D) 51 + s

Answer: C

89) The product of two numbers is 19. One of the numbers is t. What is the other number.

A) $\frac{19}{t}$ B) 19 – t C) 19t D) $\frac{t}{19}$

Answer: A

90) Today the Center City baseball team scored 11 runs. The day before yesterday they scored y. How many runs did they score in these two days?

A) 11 – y runs B) 11 + y runs C) 11y runs D) 11 + 2y runs

Answer: B

91) Susan has 7 cats. She gave t to her lonely aunt. How many does she have left?

A) 7 + t cats B) t + 7 cats C) t – 7 cats D) 7 – t cats

Answer: D

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92) Bill is q years old. How old will he be in 3 years? How old was he 9 years ago?
A) $q + 9; q - 3$ B) $q3; 3 - 9$ C) $q + 3; q - 9$ D) $q + 3; 9 - 3;$
Answer: C

93) Elizabeth earned 8 dollars a day at her job. Assuming a 5–day work week, how much did she earn in d weeks?
A) 8d dollars B) 40d dollars C) 8 + d dollars D) 40 + d
Answer: B

94) A water tank holds G gallons. Since there are 4 quarts per gallon, how many quarts does the tank hold?
A) $\frac{4}{G}$ quarts B) $\frac{G}{4}$ quarts C) G + 4 quarts D) 4G quarts
Answer: D

95) A theater ticket for adults is A dollars and the price of a child's ticket is C dollars. If 19 adults and 48 children attend the theater one night, how much money did the theater make?
A) 48A + 19C dollars B) 19A + 48C dollars C) 19C + CA dollars D) 912AC dollars
Answer: B

Provide an appropriate response.

96) Which one of these is not a linear equation?
A) $6y^2 - 3y + 1 = 0$ B) $0.07x - 0.09x = 0.57$
C) $7x + 9(x - 2) = -5x$ D) $5t - 11t = -6t$
Answer: A

97) True or false: The solution set of the equation $7y - 6 = 7y + 3$ is zero.
A) True B) False
Answer: B

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

98) This pair of equations is equivalent.
$2x - 4 = 0$ and $3x + 8 = 14$
Answer: True

99) The solution set for the equation $6(9s - 2) = 54s - 12$ is given as 0. Is this correct? Explain.
Answer: No. The solution is all real numbers.

100) Write the steps you would use to solve this equation: $2(x - 1) + 8x = -8x$.
Answer: Answers will vary.

101) What value of K makes this equation equivalent to $x = 3$? $4x - 4 = K$
Answer: 8

102) What value of K makes this equation equivalent to $x = 5$? $4x + 13x - 7 = K + 9$
Answer: 69

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

Solve the problem.

103) One half of a number is 3 more than one–sixth the same number. What is the number?
A) 9 B) 18 C) 12 D) 8
Answer: A

104) The difference between two positive integers is 40. One integer is three times as great as the other. Find the integers.
A) 20 and 40 B) 60 and 100 C) 40 and 60 D) 20 and 60
Answer: D

105) If –8 is added to a number and the sum is doubled, the result is –13 less than the number. Find the number.
A) 29 B) –5 C) 3 D) –3
Answer: A

106) The sum of twice a number and 10 less than the number is the same as the difference between –2 and the number. What is the number?
A) 2 B) 3 C) 1 D) 4
Answer: A

107) A merchant has coffee worth $30 a pound that she wishes to mix with 80 pounds of coffee worth $80 a pound to get a mixture that can be sold for $40 a pound. How many pounds of the $30 coffee should be used?
A) 200 pounds B) 160 pounds C) 400 pounds D) 320 pounds
Answer: D

108) A paint mixture contains 26 gallons of base for every gallon of color. In 567 gallons of paint, how many gallons of color are there?
A) 283 gallons B) 546 gallons C) 21 gallons D) 189 gallons
Answer: C

109) A reservation clerk worked 11.7 hours one day. She spent twice as much time entering new reservations as she did verifying old ones and one and a half as much time calling to confirm reservations as verifying old ones. How much time did she spend entering new reservations?
A) 10.4 hours B) 3.9 hours C) 2.6 hours D) 5.2 hours
Answer: D

110) A high school graduating class is made up of 591 students. There are 67 more girls than boys. How many boys are in the class?
A) 591 boys B) 329 boys C) 67 boys D) 262 boys
Answer: D

111) On August 3, the Corwin family received 19 pieces of mail, consisting of magazines, bills, letters, and ads. If they received the same number of magazines as letters, three more bills than letters, and five more ads than bills, how many magazines did they receive?
A) 5 magazines B) 2 magazines C) 10 magazines D) 3 magazines
Answer: B

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112) Pennies are packaged 50 in a roll. A mother gave her son 91 pennies for his bank and had 9 pennies left over. How many rolls of pennies did she use?
A) 3 rolls B) 4 rolls C) 2 rolls D) 5 rolls
Answer: C

113) Elaine had 4 buttons. Her grandmother donated 10 cards of buttons to the collection. Elaine sorted the buttons into 8 piles, putting 8 buttons in each pile. How many buttons were on each card from Elaine's grandmother?
A) 2 buttons B) 61 buttons C) 58 buttons D) 6 buttons
Answer: D

114) Junior high classes of 30 students each met in the cafeteria to take achievement tests. If exactly 6 students sat at each table and 20 tables were used, how many classes took the tests?
A) 17 classes B) 6 classes C) 7 classes D) 4 classes
Answer: D

115) Find the measure of an angle whose supplement is 11 times the measure of its complement.
A) 16.4° B) 40.5° C) 8.2° D) 81°
Answer: D

116) Find the measure of an angle if its supplement measures 46° less than 3 times its complement.
A) 82.5° B) 11° C) 22° D) 165°
Answer: C

117) Find the measure of an angle such that the difference between its supplement and 3 times its complement is 44°.
A) 164° B) 82° C) 67° D) 33°
Answer: C

118) Find the measure of an angle, if its supplement measures 47° more than twice its complement.
A) 57° B) 94° C) 43° D) 47°
Answer: D

119) Find the measure of an angle such that the sum of the measures of its complement and its supplement is 148°.
A) 61° B) 56° C) 32° D) 16°
Answer: A

120) 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 90° larger than each of A and B. What are the measures of the three angles?
A) A and B: 120°; C: 30° B) A and B: 40°; C: 100°
C) A and B: 30°; C: 120° D) A and C: 100°; B: 40°
Answer: C

121) 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 72 degrees larger than each of the other two angles. Find the measure of angle C.
A) 108 degrees B) 72 degrees C) 144 degrees D) 36 degrees
Answer: A

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122) The sum of two consecutive integers is –219. Find the larger integer.
A) –111 B) –108 C) –110 D) –109
Answer: D

123) The sum of three consecutive integers is 342. Find the integers.
A) 112, 114, 116 B) 113, 114, 115 C) 114, 115, 116 D) 112, 113, 114
Answer: B

124) The sum of three consecutive even integers is 216. Find the integers.
A) 74, 76, 78 B) 65, 66, 67 C) 72, 74, 76 D) 70, 72, 74
Answer: D

125) Two pages that face each other in a book have 341 as the sum of their page numbers. What is the number of the page that comes first?
A) 171 B) 170 C) 169 D) 168
Answer: B

126) If three times the smaller of two consecutive integers is added to four times the larger, the result is 67. Find the smaller integer.
A) 27 B) 9 C) 8 D) 10
Answer: B

127) 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) 21 C) 42 D) 23
Answer: D

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

Answer the question.

128) 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) 42 (ii) 1 (iii) 1,000,010 (iv) 110

Answer: iii

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

129) The following statement would be considered a step in solving an applied problem. True or false?

Translate the problem into an equation.
A) False B) True
Answer: B

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

130) If x represents a positive integer, how would you express its negative?
Answer: –x

131) If x represents a negative integer, how would you express its negative?
Answer: –x

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132) How would you express the product of two numbers, r and s?

Answer: rs

133) Two angles are complimentary. One of the angles is r. How do you express the other angle?

Answer: 90 – r

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

Answer: x – 2, x – 1, x

135) Two angles q and r are complimentary. The angle s is supplementary to q. Write an equation showing the relationship between r and s.

Answer: s – 90 = r or r + 90 = s or s – r = 90

136) 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

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

Decide whether perimeter or area would be used to solve a problem concerning the measure of the quantity.

137) Baseboards for a dining room

A) Area B) Perimeter

Answer: B

138) Tilling a garden

A) Area B) Perimeter

Answer: A

139) Border fence for a garden

A) Area B) Perimeter

Answer: B

140) Tile for a kitchen

A) Area B) Perimeter

Answer: A

141) Determining the cost for painting a wall

A) Area B) Perimeter

Answer: A

A formula is given along with the values of all but one of the variables in the formula. Find the value of the variable not given. Round to the nearest hundredth where necessary.

142) P = 2L + 2W; L = 5, W = 9

A) 90 B) 28 C) 14 D) 19

Answer: B

143) $V = \frac{4}{3}\pi r^3$; r = 4, π = 3.14

A) 85.33 B) 803.85 C) 267.95 D) 66.99

Answer: C

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144) $A = \frac{1}{2}bh$; $b = 15, h = 17$

A) 32 B) 32.5 C) 255 D) 127.5

Answer: D

145) $d = rt$; $t = 9, d = 45$

A) 5 B) 54 C) 36 D) 0.2

Answer: A

146) $P = 2L + 2W$; $P = 30, W = 8$

A) 11 B) 15 C) 7 D) 22

Answer: C

147) $V = \frac{1}{3}Bh$; $V = 35, h = 7$

A) 42 B) 15 C) 5 D) 245

Answer: B

148) $C = 2\pi r$; $C = 43.96, \pi = 3.14$

A) 276.07 B) 7 C) 14 D) 47.10

Answer: B

149) $A = \pi r^2$; $r = 3, \pi = 3.14$

A) 6.14 B) 29.58 C) 9.42 D) 28.26

Answer: D

150) $I = prt$; $I = 22, p = 220, r = 0.05$

A) 2.42 B) 2 C) 242 D) 0.2

Answer: B

151) $A = \frac{1}{2}(b + B)h$; $A = 65, b = 14, B = 12$

A) 168 B) 39 C) 13 D) 5

Answer: D

Use a formula to solve the problem.

152) What is the perimeter of a rectangle of length 10 ft and width 13 ft?

A) 23 ft B) 46 ft C) 92 ft D) 33 ft

Answer: B

153) What is the area of a square with side 3.9 cm?

A) 15.21 cm^2 B) 7.8 cm^2 C) 59 cm^2 D) 60.84 cm^2

Answer: A

154) Find the area of a triangle with height 11 m and base 5 m.

A) 110 m^2 B) 8 m^2 C) 27.5 m^2 D) 55 m^2

Answer: C

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155) The area of a trapezoid is 63 square feet. If the bases are 7 and 14 feet, find the altitude of the trapezoid.

A) 3 ft B) 12 ft C) 6 ft D) 1.5 ft

Answer: C

156) A circle has a circumference of 46π meters. Find the radius of the circle.

A) 23 m B) 7 m C) 46 m D) 12 m

Answer: A

157) A rectangular Persian carpet has a perimeter of 160 inches. The length of the carpet is 20 inches more than the width. What are the dimensions of the carpet?

A) 50 in. by 70 in. B) 70 in. by 90 in. C) 30 in. by 50 in. D) 60 in. by 80 in.

Answer: C

158) A square plywood platform has a perimeter which is 11 times the length of a side, decreased by 14. Find the length of a side.

A) 9 units B) 1 unit C) 7 units D) 2 units

Answer: D

159) A pie–shaped (triangular) lake–front lot has a perimeter of 1800 feet. One side is 400 feet longer than the shortest side, while the third side is 500 feet longer than the shortest side. Find the lengths of all three sides.

A) 400 ft, 800 ft, 900 ft B) 400 ft, 400 ft, 400 ft C) 300 ft, 700 ft, 800 ft D) 100 ft, 200 ft, 300 ft

Answer: C

160) A baking pan measures 9 inches long, 9 inches wide, and 2 inches deep. What is the volume of the pan?

A) 36 $in.^3$ B) 20 $in.^3$ C) 162 $in.^3$ D) 81 $in.^3$

Answer: C

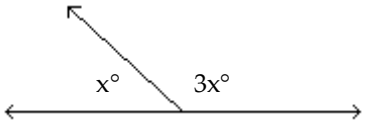
161) A water reservoir is shaped like a rectangular solid with a base that is 3 meters by 8 meters, and a vertical height of 7 meters. How much water is in the reservoir if it is completely full?

A) 168 m^3 B) 63 m^3 C) 192 m^3 D) 392 m^3

Answer: A

Find the measure of each marked angle.

162)

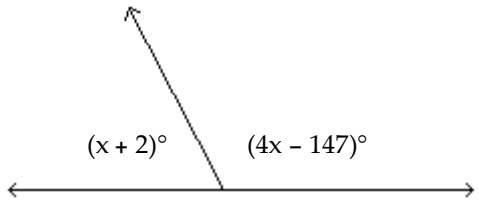


A) 60° and 120° B) 90° and 270° C) 45° and 55° D) 45° and 135°

Answer: D

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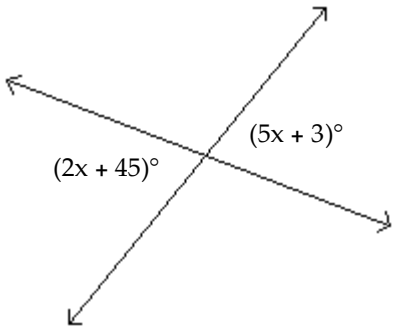
163)



A) 65° and 115° B) 67° and 23° C) 69° and 111° D) 67° and 113°

Answer: D

164)



A) 73° and 73° B) 76° and 76° C) 73° and 17° D) 73° and 107°

Answer: A

Solve the formula for the specified variable.

165) $A = \frac{1}{2}bh$ for b

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

Answer: C

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

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

Answer: A

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

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

Answer: C

168) $I = \frac{nE}{nr + R}$ for n

A) $n = \frac{-R}{Ir - E}$ B) $n = \frac{-IR}{Ir - E}$ C) $n = \frac{IR}{Ir + E}$ D) $n = IR(Ir - E)$

Answer: B

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

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

Answer: D

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

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

A) $b_1 = \frac{(b_2)2A - h}{h}$ B) $b_1 = \frac{h(b_2) - 2A}{h}$ C) $b_1 = \frac{2A - (h)(b_2)}{h}$ D) $b_1 = \frac{A - h(b_2)}{2h}$

Answer: C

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

A) $s = a + b - r$ B) $s = r(a + b)$ C) $s = \frac{a + b}{r}$ D) $s = \frac{a}{r} + b$

Answer: A

173) $A = P(1 + nr)$ for n

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

Answer: B

Express the phrase as a ratio in lowest terms.

174) 18 miles to 6 miles

A) $\frac{19}{7}$ B) $\frac{1}{3}$ C) $\frac{7}{19}$ D) $\frac{3}{1}$

Answer: D

175) 24 people to 15 people

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

Answer: C

176) 68 feet to 36 feet

A) $\frac{17}{9}$ B) $\frac{9}{17}$ C) $\frac{69}{37}$ D) $\frac{37}{69}$

Answer: A

177) 18 inches to 15 inches

A) $\frac{16}{19}$ B) $\frac{6}{5}$ C) $\frac{5}{6}$ D) $\frac{19}{16}$

Answer: B

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178) 135 cm to 30 cm

A) $\frac{2}{9}$ B) $\frac{31}{136}$ C) $\frac{136}{31}$ D) $\frac{9}{2}$

Answer: D

179) 2 yards to 4 feet

A) $\frac{2}{3}$ B) $\frac{7}{5}$ C) $\frac{5}{7}$ D) $\frac{3}{2}$

Answer: D

180) 6 feet to 40 inches

A) $\frac{9}{5}$ B) $\frac{3}{20}$ C) $\frac{1}{80}$ D) $\frac{40}{6}$

Answer: A

181) 4 minutes to 3 hours

A) $\frac{4}{3}$ B) $\frac{1}{45}$ C) 80 D) $\frac{4}{60}$

Answer: B

182) 60 cents to $7

A) $\frac{60}{7}$ B) $\frac{7}{600}$ C) $\frac{3}{7}$ D) $\frac{3}{35}$

Answer: D

Tell which brand is the better buy.

183) Brand X 15 oz for $6.30
Brand Y 10 oz for $4.00

A) Not enough information B) Brand Y
C) Equal value D) Brand X

Answer: B

184) Brand A 42 oz for $28.14
Brand B 36 oz for $23.40

A) Equal value B) Not enough information
C) Brand B D) Brand A

Answer: C

185) Brand A 24 oz for $14.64
Brand B 28 oz for $18.20

A) Not enough information B) Equal value
C) Brand A D) Brand B

Answer: C

186) Brand X 8 oz for $2.08
Brand Y 12 oz for $3.24

A) Equal value B) Brand X
C) Not enough information D) Brand Y

Answer: B

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Solve the equation.

187) $\frac{x}{28} = \frac{5}{14}$

A) $\left\{\frac{5}{2}\right\}$ B) $\left\{\frac{392}{5}\right\}$ C) {10} D) {20}

Answer: C

188) $\frac{3}{y} = \frac{15}{20}$

A) {4} B) $\left\{\frac{9}{4}\right\}$ C) {40} D) $\left\{\frac{4}{9}\right\}$

Answer: A

189) $\frac{1}{2} = \frac{r}{13}$

A) $\left\{\frac{13}{2}\right\}$ B) $\left\{\frac{1}{26}\right\}$ C) {26} D) {13}

Answer: A

190) $\frac{4}{5} = \frac{12}{x + 8}$

A) $\left\{\frac{1}{2}\right\}$ B) {23} C) {13} D) {7}

Answer: D

191) $\frac{x + 6}{7} = \frac{3}{20}$

A) $\left\{\frac{3}{4}\right\}$ B) {–99} C) $\left\{\frac{141}{20}\right\}$ D) $\left\{-\frac{99}{20}\right\}$

Answer: D

192) $\frac{x + 10}{10} = \frac{10}{7}$

A) {30} B) $\left\{\frac{90}{7}\right\}$ C) $\left\{\frac{30}{7}\right\}$ D) $\left\{\frac{170}{7}\right\}$

Answer: C

193) $\frac{4}{5} = \frac{x + 2}{x + 11}$

A) $\left\{\frac{17}{2}\right\}$ B) {34} C) $\left\{\frac{34}{9}\right\}$ D) {6}

Answer: B

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194) $\frac{3x - 8}{3} = \frac{4x + 2}{10}$

A) $\left\{-\frac{37}{9}\right\}$ B) $\left\{\frac{43}{9}\right\}$ C) $\left\{-\frac{37}{21}\right\}$ D) $\left\{\frac{43}{21}\right\}$

Answer: B

195) $\frac{1}{3x - 5} = \frac{4}{3x + 4}$

A) {24} B) {9} C) $\left\{\frac{8}{3}\right\}$ D) $\left\{-\frac{16}{15}\right\}$

Answer: C

196) $\frac{4}{4x} = \frac{3}{5x + 4}$

A) $\left\{\frac{1}{2}\right\}$ B) {–8} C) {16} D) {– 2}

Answer: D

Solve the problem.

197) If a boat uses 19 gallons of gas to go 65 miles, how many miles can the boat travel on 57 gallons of gas?

A) 390 miles B) 21 miles C) 215 miles D) 195 miles

Answer: D

198) If 4 hours are required to type 12 pages, how many hours would be required to type 21 pages?

A) 8 hours B) 2 hours C) 3 hours D) 7 hours

Answer: D

199) In a sample of 83 widgets, 7 were defective. How many defective widgets would you expect in a sample of 249 widgets?

A) 48 widgets B) 21 widgets C) 24 widgets D) 19 widgets

Answer: B

200) The sides of a triangle are 9 inches, 10 inches, and 11 inches. If the shortest side of a similar triangle is 45 inches, find its longest side.

A) 50 inches B) 55 inches C) 10 inches D) 49 inches

Answer: B

201) On a map of the Thunderbird Country Club golf course, 1.5 inches equals 45 yards. How long is the 7th hole if the map shows 11.5 inches?

A) 345 yd B) 5.9 yd C) 517.5 yd D) 776.25 yd

Answer: A

202) A label printer prints 8 pages of labels in 3.1 seconds. How long will it take to print 328 pages of labels?

A) 131.1 sec B) 127.1 sec C) 129.1 sec D) 130.1 sec

Answer: B

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203) If a spring stretches 0.9 m when a 6–kg weight is attached to it, how much will it stretch when a 16–kg weight is attached to it?
A) 4.4 m B) 5.4 m C) 1.4 m D) 2.4 m
Answer: D

204) Dr. Smith can see 12 patients in 3 hours. At this rate, how long would it take him to see 84 patients?
A) 336 hours B) 20 hours C) 21 hours D) 36 hours
Answer: C

205) The ratio of the distances a pitching wedge and an 8–iron will drive a golf ball is 4 to 5. If a golfer averages 148 yards with a pitching wedge, how far should she average with an 8–iron?
A) 139 yd B) 185 yd C) 118 yd D) 157 yd
Answer: B

206) The ratio of the lengths of strings that play the notes D and B is 27 to 16. If a string 96 cm long plays a B, what is the length of the string that plays a D?
A) 112 cm B) 162 cm C) 96 cm D) 123 cm
Answer: B

Answer the question about percent. Round to the nearest hundredth where necessary.

207) What is 20% of 200?
A) 40 B) 0.4 C) 400 D) 4
Answer: A

208) What is 170% of 3550?
A) 603,500 B) 60,350 C) 6035 D) 604
Answer: C

209) What is 88% of 432?
A) 38,016 B) 3801.6 C) 380.16 D) 38.02
Answer: C

210) What is 8.0% of 24?
A) 1.92 B) 0.19 C) 192 D) 19.2
Answer: A

211) What is 130% of 3290?
A) 427,700 B) 4277 C) 42,770 D) 428
Answer: B

Answer the question about percent. Round your answer to the nearest tenth of a percent, if necessary.

212) 125 is what percent of 1890?
A) 6.6% B) 0.0% C) 1512.0% D) 0.1%
Answer: A

213) 981 is what percent of 789?
A) 1.2% B) 124.3% C) 0.1% D) 80.4%
Answer: B

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214) What percent of 2767 is 19?
A) 14,563.2% B) 16.9% C) 0.7% D) 6.9%
Answer: C

215) 3.3 is what percent of 23?
A) 7% B) 14.3% C) 0.1% D) 697%
Answer: B

216) What percent of 8 is 0.03?
A) 37.5% B) 266.7% C) 3.8% D) 0.4%
Answer: D

217) What percent of 100 is 18.3?
A) 18.3% B) 0.1% C) 546.4% D) 0.2%
Answer: A

218) What percent of 48 is 756?
A) 157.5% B) 0.1% C) 1575.0% D) 0.6%
Answer: C

219) 74.8 is what percent of 6?
A) 12,467.0% B) 1246.7% C) 0.8% D) 8.0%
Answer: B

Answer the question about percent. Round to the nearest whole number where necessary.

220) 90 is 10% of what number?
A) 900 B) 9000 C) 9 D) 90
Answer: A

221) 16 is 5% of what number?
A) 3200 B) 32 C) 80 D) 320
Answer: D

222) 44% of what number is 80?
A) 100 B) 182 C) 1 D) 1820
Answer: B

223) 30% of what number is 87?
A) 2900 B) 26 C) 29 D) 290
Answer: D

224) 201 is 41% of what number?
A) 49,000 B) 2 C) 4900 D) 490
Answer: D

225) 43 is 0.82% of what number?
A) 2 B) 52,440 C) 200 D) 5244
Answer: D

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226) 577 is 13.1% of what number?
A) 4405 B) 44,050 C) 440,500 D) 2
Answer: A

227) 67 is 121% of what number?
A) 55 B) 146 C) 550 D) 14,600
Answer: A

Solve the problem.

228) The parking lot at a shopping mall has 55 cars in it. 60% of the cars are four–door. How many cars are four–door?
A) 92 cars B) 33 cars C) 9 cars D) 330 cars
Answer: B

229) A chemical solution contains 6% calcium. How much calcium is in 3.5 ml of solution?
A) 5.833 ml B) 2.1 ml C) 58.333 ml D) 0.21 ml
Answer: D

230) An appliance store had monthly sales of $81,200 and spent 2% of it on promotions. How much was spent on promotions?
A) $1624 B) $4,060,000 C) $16,240 D) $406,000
Answer: A

231) A pension fund invests $97,600 in highway bonds and earns 5% per year on the investment. How much money is earned per year?
A) $195,200 B) $48,800 C) $1,952,000 D) $4880
Answer: D

232) The American National Bank pays $5\frac{3}{5}$% interest per year on certificate accounts. What is the annual income on a certificate account of $79,400? Round to the nearest dollar.
A) $1,588,000 B) $44,460 C) $4446 D) $158,800
Answer: C

233) The appliance store where the Jordans shop offers a 9% discount for paying cash. The Jordans received a discount of $81. What was their total bill before the discount? Round to the nearest dollar.
A) $700 B) $7 C) $900 D) $9
Answer: C

234) There are 7150 self–employed persons in a town. If this represents 9% of the total number, what is the total number? Round to the nearest whole number.
A) 64,400 B) 794 C) 79,444 D) 644
Answer: C

235) Students at East Central High School earned $504 selling candy. They want to make $4750 for a club trip. What percent of their goal has been reached? Round to the nearest tenth of a percent, if necessary.
A) 9.4% B) 94% C) 10.6% D) 1.1%
Answer: C

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236) Tech Support spent $34,280 this year on advertising alone. If total sales were $857,200, what percent of total sales was spent on advertising? Round to the nearest tenth of a percent, if necessary.

A) 0.4% B) 4% C) 250% D) 25%

Answer: B

237) A Panasonic KXP1124 printer priced at $512 is sold for $429. What was the percent of price reduction? Round to the nearest tenth of a percent, if necessary.

A) 616.9% B) 119.3% C) 16.2% D) 83.8%

Answer: C

Provide an appropriate response.

238) Which one of the following ratios is not the same as 5 to 6?

A) 50 to 60 B) 6 to 5 C) 10 to 12 D) 200 to 240

Answer: B

239) Which one of the following ratios is not the same as 4 to 6?

A) 2 to 3 B) 6 to 4 C) 8 to 12 D) 20 to 30

Answer: B

240) Which one of the following ratios is not the same as 0.75?

A) 3 to 4 B) 8 to 6 C) 75 to 100 D) 0.750

Answer: B

241) Which one of the following ratios is not the same as 1.3?

A) 130 to 100 B) 1.30 C) 13 to 10 D) 1 to 3

Answer: D

242) Which one of the following ratios is not the same as 4 to 16?

A) 4 to 1 B) 0.25 C) 40 to 160 D) 2 to 8

Answer: A

243) Which one of the following ratios is not the same as 5 to 2?

A) 10 to 4 B) 2 to 5 C) 50 to 20 D) 25 to 10

Answer: B

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

244) Give three ratios that are equivalent to 13 to 16.

Answer: Answers will vary. An example is 26 to 32.

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

245) A ratio is a reduced proportion. True or false?

A) True B) False

Answer: B

246) A proportion equates two ratios. True or false?

A) True B) False

Answer: A

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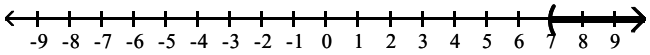
247) In a proportion, if one number from one of the ratios is unknown, how many of the remaining numbers are needed to find its value?

A) None B) Two C) One D) Three

Answer: D

Write an inequality using the variable x that corresponds to the set graphed on the number line.

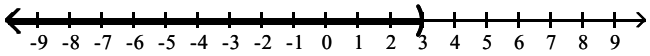
248)



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

Answer: A

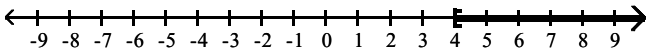
249)



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

Answer: C

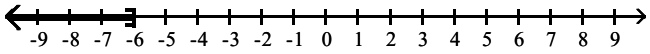
250)



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

Answer: D

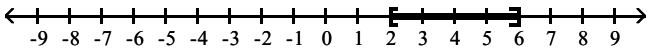
251)



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

Answer: C

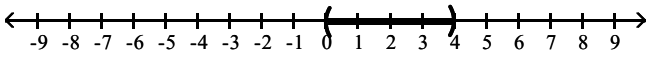
252)



A) $2 < x \leq 6$ B) $2 < x < 6$ C) $2 \leq x \leq 6$ D) $2 \leq x < 6$

Answer: C

253)

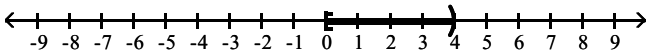


A) $0 < x < 4$ B) $0 \leq x < 4$ C) $0 < x \leq 4$ D) $0 \leq x \leq 4$

Answer: A

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254)



A) $0 \le x < 4$ B) $0 \le x \le 4$ C) $0 < x < 4$ D) $0 < x \le 4$

Answer: A

Write the inequality in interval notation.

255) $x > 0$

A) $(0, \infty)$ B) $(-\infty, 0]$ C) $[0, \infty)$ D) $(-\infty, 0)$

Answer: A

256) $x < 0$

A) $[0, \infty)$ B) $(-\infty, 0)$ C) $(-\infty, 0]$ D) $(0, \infty)$

Answer: B

257) $x \ge -3$

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

Answer: A

258) $x \le -2$

A) $(-\infty, -2]$ B) $[-2, \infty)$ C) $(-2, \infty)$ D) $(-\infty, -2)$

Answer: A

259) $3 \le x \le 7$

A) $[3, 7]$ B) $[3, 7)$ C) $(3, 7)$ D) $(3, 7]$

Answer: A

260) $-5 < x < -1$

A) $[-5, -1)$ B) $(-5, -1)$ C) $(-5, -1]$ D) $[-5, -1]$

Answer: B

261) $0 \le x < 4$

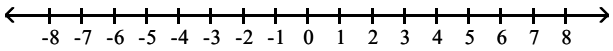
A) $(0, 4)$ B) $[0, 4]$ C) $(0, 4]$ D) $[0, 4)$

Answer: D

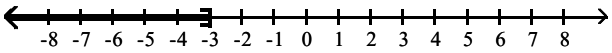
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Graph the inequality.

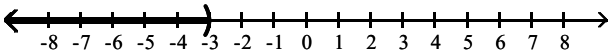
262) $x > -3$



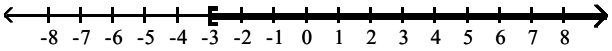
A)



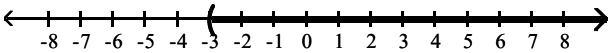
B)



C)

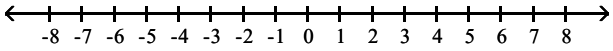


D)

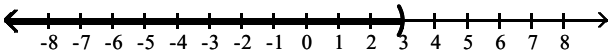


Answer: D

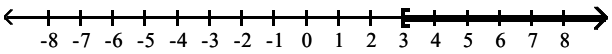
263) $x < 3$



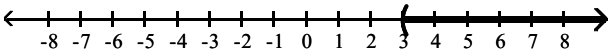
A)



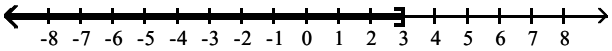
B)



C)



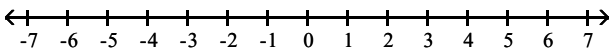
D)



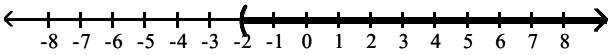
Answer: A

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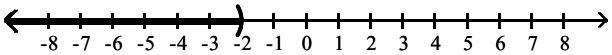
264) $x \geq -2$



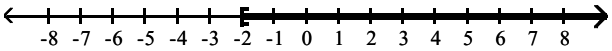
A)



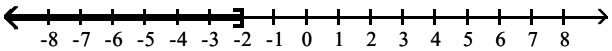
B)



C)

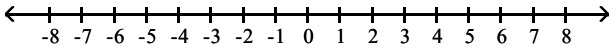


D)

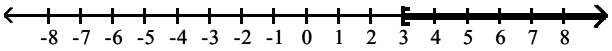


Answer: C

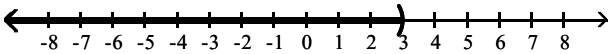
265) $x \leq 3$



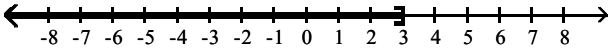
A)



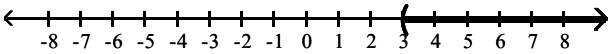
B)



C)



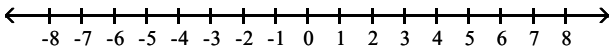
D)



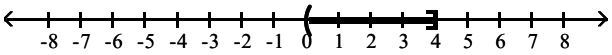
Answer: C

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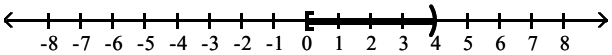
266) $0 \le x \le 4$



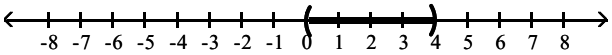
A)



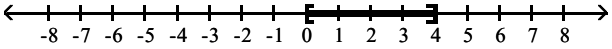
B)



C)

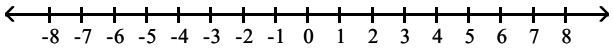


D)

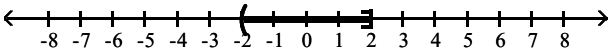


Answer: D

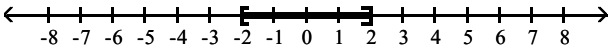
267) $-2 < x < 2$



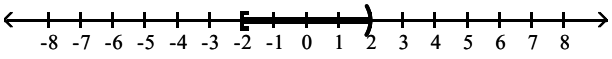
A)



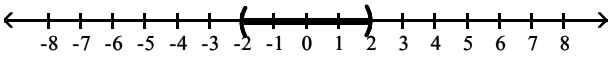
B)



C)



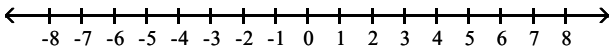
D)



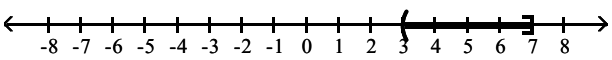
Answer: D

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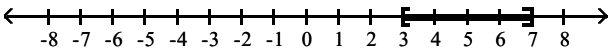
268) $3 \leq x < 7$



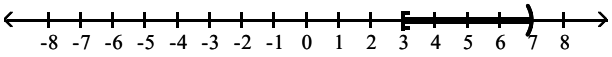
A)



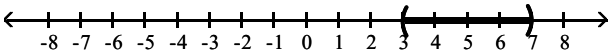
B)



C)



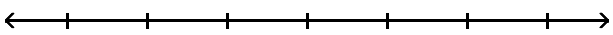
D)



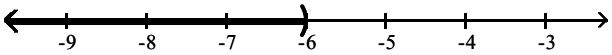
Answer: C

Solve the inequality, then graph the solution.

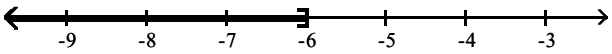
269) $a + 8 < 2$



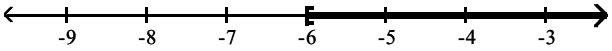
A) $(-\infty, -6)$



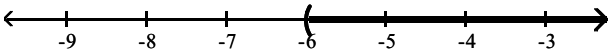
B) $(-\infty, -6]$



C) $[-6, \infty)$



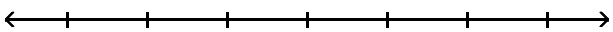
D) $(-6, \infty)$



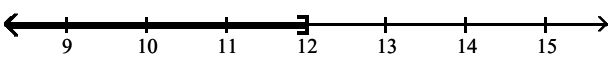
Answer: A

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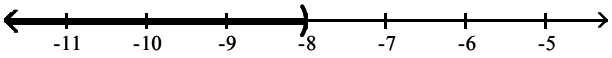
270) $-2n + 10 > -3n + 2$



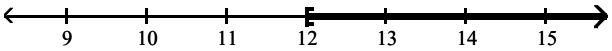
A) $(-\infty, 12]$



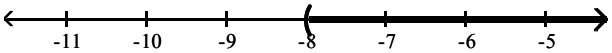
B) $(-\infty, -8)$



C) $[12, \infty)$

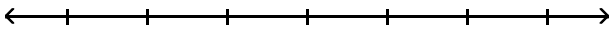


D) $(-8, \infty)$

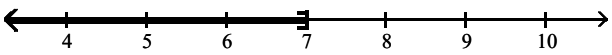


Answer: D

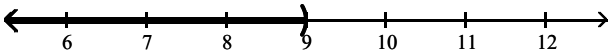
271) $9c - 3 \leq 8c + 4$



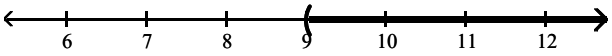
A) $(-\infty, 7]$



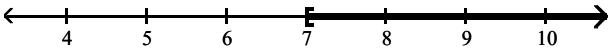
B) $(-\infty, 9)$



C) $(9, \infty)$



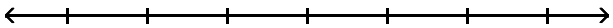
D) $[7, \infty)$



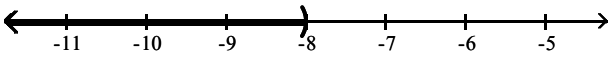
Answer: A

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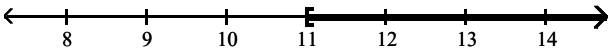
272) $-8t + 8 \geq -9t + 19$



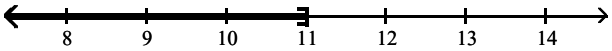
A) $(-\infty, -8)$



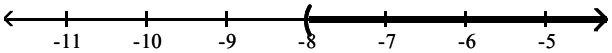
B) $[11, \infty)$



C) $(-\infty, 11]$

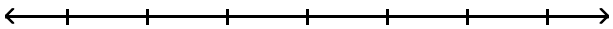


D) $(-8, \infty)$

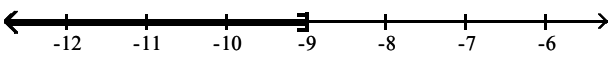


Answer: B

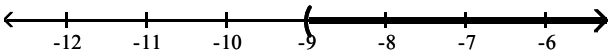
273) $f + 2 < -7$



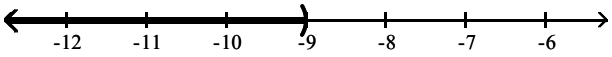
A) $(-\infty, -9]$



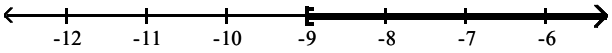
B) $(-9, \infty)$



C) $(-\infty, -9)$



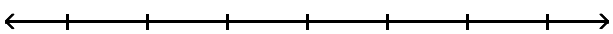
D) $[-9, \infty)$



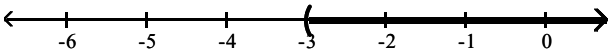
Answer: C

Access Complete Test Bank for Introductory and Intermediate Algebra 6th Lial

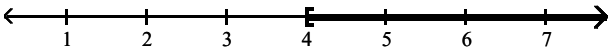
274) $-3 - 3t + 1 \geq -4t + 2$



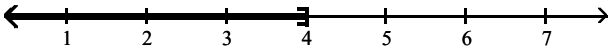
A) $(-3, \infty)$



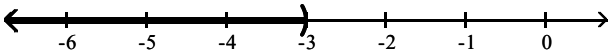
B) $[4, \infty)$



C) $(-\infty, 4]$

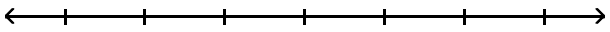


D) $(-\infty, -3)$

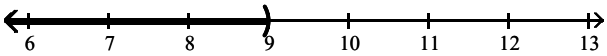


Answer: B

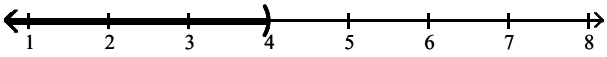
275) $3x < 12$



A) $(-\infty, 9)$



B) $(-\infty, 4)$



C) $(4, \infty)$



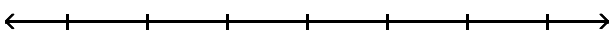
D) $(9, \infty)$



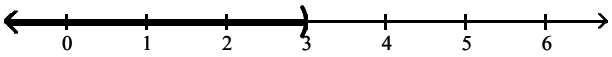
Answer: B

Access Complete Test Bank for Introductory and Intermediate Algebra 6th Lial

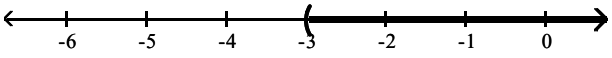
276) $13x < 39$



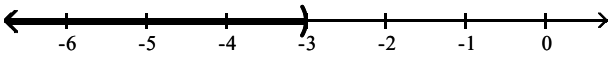
A) $(-\infty, 3)$



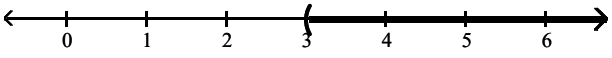
B) $(-3, \infty)$



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

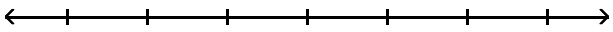


D) $(3, \infty)$

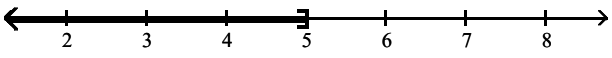


Answer: A

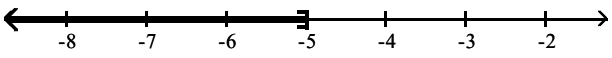
277) $-3x \geq 15$



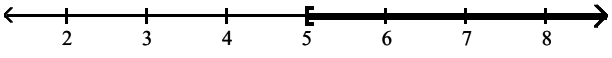
A) $(-\infty, 5]$



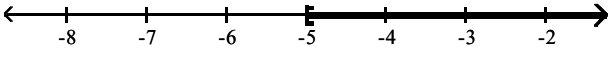
B) $(-\infty, -5]$



C) $[5, \infty)$



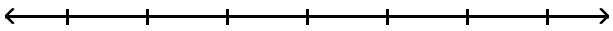
D) $[-5, \infty)$



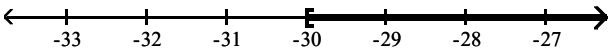
Answer: B

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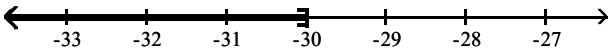
278) $2x \leq -60$



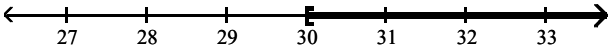
A) $[-30, \infty)$



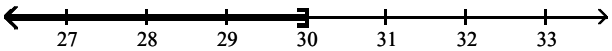
B) $(-\infty, -30]$



C) $[30, \infty)$

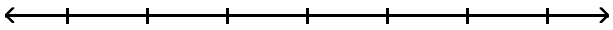


D) $(-\infty, 30]$

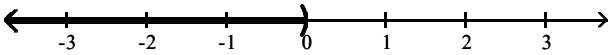


Answer: B

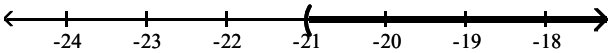
279) $21x > 0$



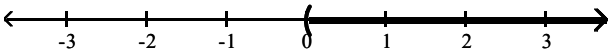
A) $(-\infty, 0]$



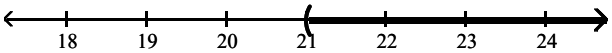
B) $(-21, \infty)$



C) $(0, \infty)$



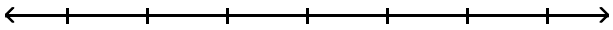
D) $(21, \infty)$



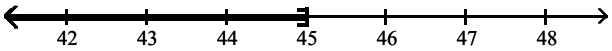
Answer: C

Access Complete Test Bank for Introductory and Intermediate Algebra 6th Lial

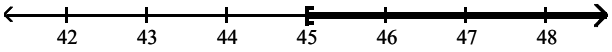
280) $\frac{4}{3}t \geq -60$



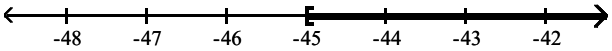
A) $(-\infty, 45]$



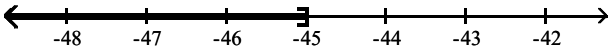
B) $[45, \infty)$



C) $[-45, \infty)$

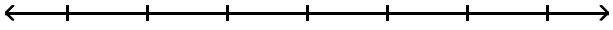


D) $(-\infty, -45]$

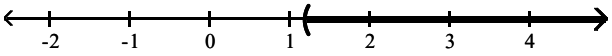


Answer: C

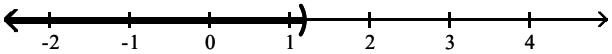
281) $-0.4z > -0.48$



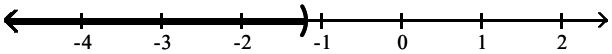
A) $(1.2, \infty)$



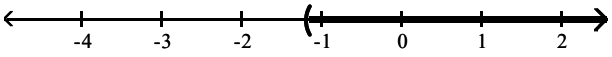
B) $(-\infty, 1.2)$



C) $(-\infty, -1.2)$



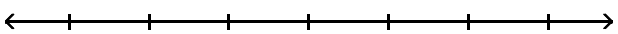
D) $(-1.2, \infty)$



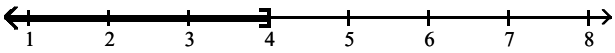
Answer: B

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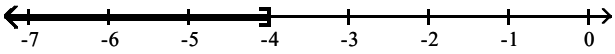
282) $6r + 9 \geq 4r + 1$



A) $(-\infty, 4]$



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



C) $[-4, \infty)$

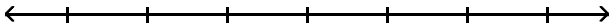


D) $[4, \infty)$

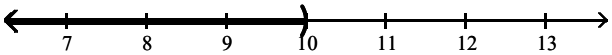


Answer: C

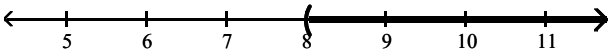
283) $4x + 2 - 7x < 10 - 5x + 8$



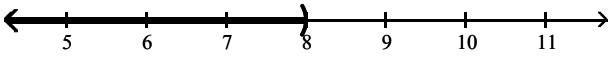
A) $(-\infty, 10)$



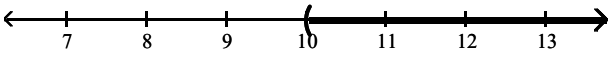
B) $(8, \infty)$



C) $(-\infty, 8)$



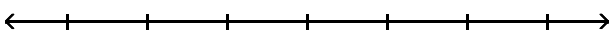
D) $(10, \infty)$



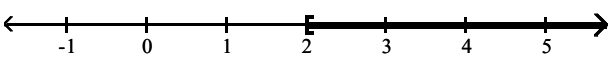
Answer: C

Access Complete Test Bank for Introductory and Intermediate Algebra 6th Lial

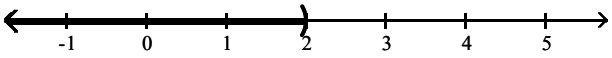
284) $20x + 30 > 5(3x + 8)$



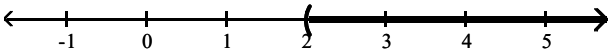
A) $[2, \infty)$



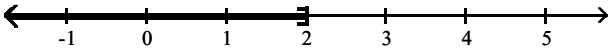
B) $(-\infty, 2)$



C) $(2, \infty)$

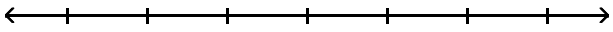


D) $(-\infty, 2]$

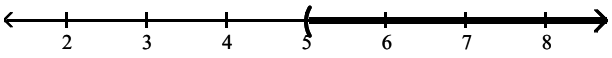


Answer: C

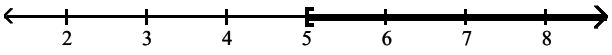
285) $-2(6x + 12) < -14x - 14$



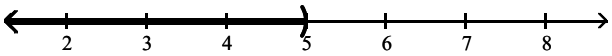
A) $(5, \infty)$



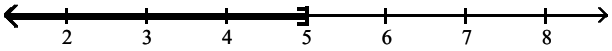
B) $[5, \infty)$



C) $(-\infty, 5)$



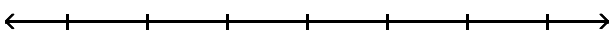
D) $(-\infty, 5]$



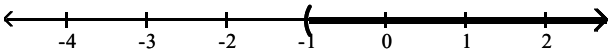
Answer: C

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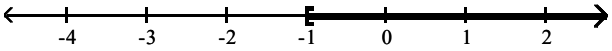
286) $-16x + 20 \leq -4(3x - 6)$



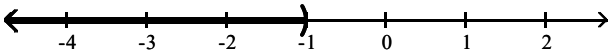
A) $(-1, \infty)$



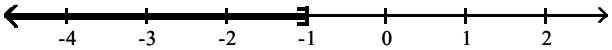
B) $[-1, \infty)$



C) $(-\infty, -1)$

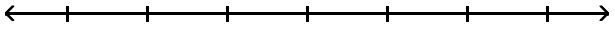


D) $(-\infty, -1]$

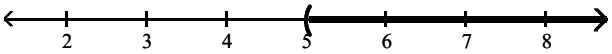


Answer: B

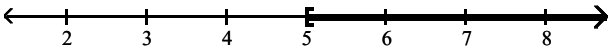
287) $21x - 3 \leq 3(6x + 4)$



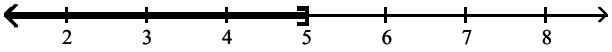
A) $(5, \infty)$



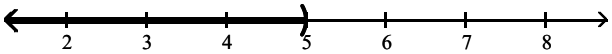
B) $[5, \infty)$



C) $(-\infty, 5]$



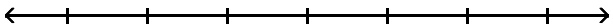
D) $(-\infty, 5)$



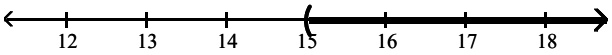
Answer: C

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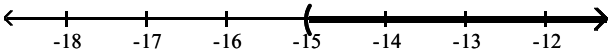
288) $3(x - 3) - 45x < 8(-5x - 3) - 3x$



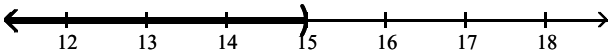
A) $(15, \infty)$



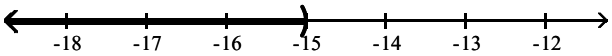
B) $(-15, \infty)$



C) $(-\infty, 15)$

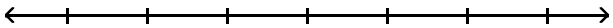


D) $(-\infty, -15)$

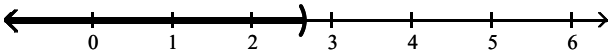


Answer: D

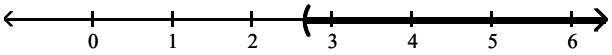
289) $\frac{8}{25}(x + 4) > \frac{1}{5}(x + 8)$



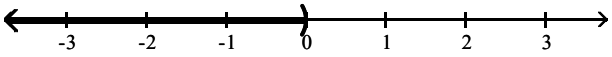
A) $\left(-\infty, \frac{8}{3}\right)$



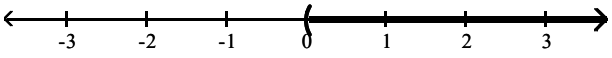
B) $\left(\frac{8}{3}, \infty\right)$



C) $(-\infty, 0)$



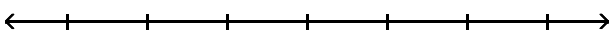
D) $(0, \infty)$



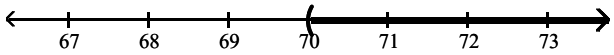
Answer: B

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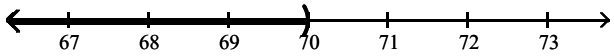
290) $-6(6x - 14) - 4(x + 4) > -6(6x + 2) - 6(x + 10)$



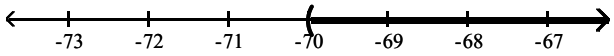
A) $(70, \infty)$



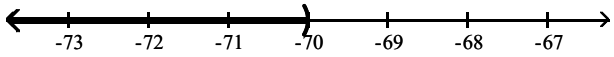
B) $(-\infty, 70)$



C) $(-70, \infty)$



D) $(-\infty, -70)$



Answer: C

Solve the problem.

291) If half a number is added to 6, the result is greater than or equal to −7. Find all such numbers.

A) $x \geq -26$ B) $x \leq -42$ C) $x > -26$ D) $x \geq -1$

Answer: A

292) Paul has grades of 84 and 67 on his first two tests. What must he score on his third test in order to have an average of at least 80?

A) at least 89 B) at most 77 C) at most 80 D) at least 76

Answer: A

293) Sue drove her car 386 miles in January, 293 miles in February, and 412 miles in March. If her average mileage for the four months from January to April is to be at least 326 miles, how many miles must she drive in April?

A) at most 326 miles B) at least 354 miles C) at least 213 miles D) at most 213 miles

Answer: C

294) During the first four months of the year, Jack earned $1480, $810, $1170 and $710. If Jack must have an average salary of at least $940 in order to earn retirement benefits, what must Jack earn in the fifth month in order to qualify for benefits?

A) at least $1022 B) at least $530 C) at most $1043 D) at most $940

Answer: B

295) One side of a triangle is twice as long as a second side. The third side of the triangle is 14 feet long. The perimeter of the triangle cannot be more than 29 feet. Find the longest possible values for the other two sides of the triangle.

A) 8 feet and 8 feet B) 4 feet and 8 feet C) 22 feet and 22 feet D) 5 feet and 10 feet

Answer: D

296) The perimeter of a rectangle must be no greater than 54 meters. The width must be 12 meters. Find the greatest possible value for the length of the rectangle.

A) 39 meters B) 42 meters C) 66 meters D) 15 meters

Answer: D

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297) A bag of marbles has twice as many blue marbles as green marbles, and the bag has at least 51 marbles in it. At least how many green marbles does it have?

A) At least 34 green marbles
B) At least 18 green marbles
C) At least 17 green marbles
D) At least 26 green marbles

Answer: C

298) Jon has 674 points in his math class. He must have 67% of the 1100 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) 63 points
B) 426 points
C) 452 points
D) 737 points

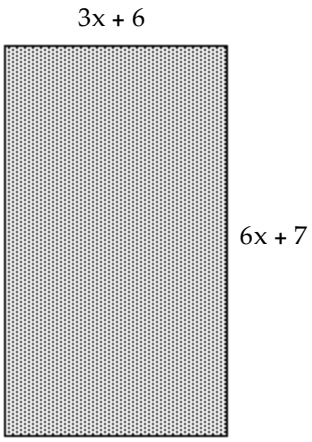
Answer: A

299) The formula for converting Fahrenheit temperature to Celsius is $C = \frac{5}{9}(F - 32)$. If a bottle of prescription medicine is to be kept below 25° Celsius, how would you describe this warning using Fahrenheit temperature?

A) It must be kept below 46° Fahrenheit.
B) It must be kept below 103° Fahrenheit.
C) It must be kept below −18° Fahrenheit.
D) It must be kept below 77° Fahrenheit.

Answer: D

300) For what values of x would the rectangle have a perimeter of at least 278?



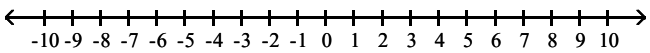
A) 29 or greater
B) 29 or less
C) 14 or less
D) 14 or greater

Answer: D

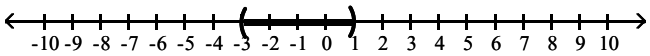
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Solve the inequality, then graph the solution.

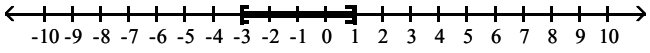
301) $-9 < 4b + 3 \leq 7$



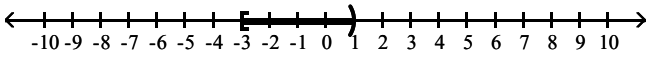
A) (–3, 1)



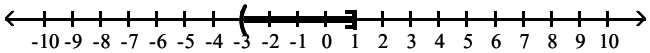
B) [–3, 1]



C) [–3, 1)

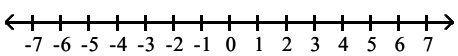


D) (–3, 1]

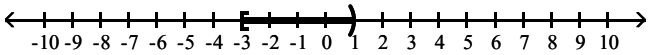


Answer: D

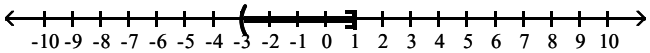
302) $-2 < -5a + 3 \leq 18$



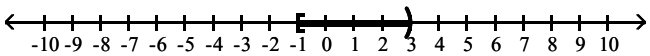
A) [–3, 1)



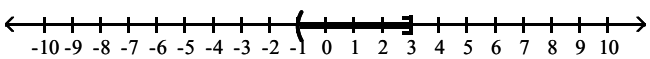
B) (–3, 1]



C) [–1, 3)



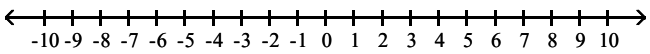
D) (–1, 3]



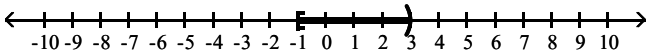
Answer: A

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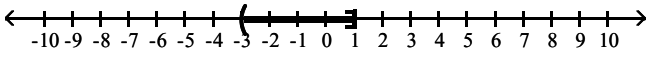
303) $2 < -2x + 4 \leq 10$



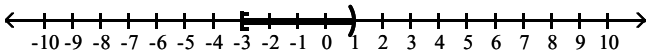
A) $[-1, 3)$



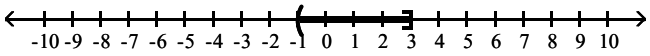
B) $(-3, 1]$



C) $[-3, 1)$

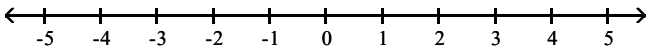


D) $(-1, 3]$

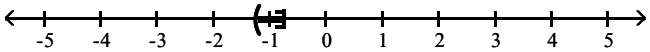


Answer: C

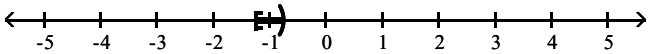
304) $4 < 1 - 4x \leq 6$



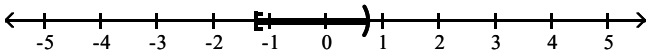
A) $\left(-\frac{5}{4}, -\frac{3}{4}\right]$



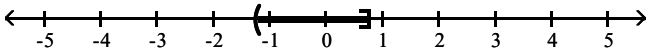
B) $\left[-\frac{5}{4}, -\frac{3}{4}\right)$



C) $\left[-\frac{5}{4}, \frac{3}{4}\right)$



D) $\left(-\frac{5}{4}, \frac{3}{4}\right]$



Answer: B

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

Provide an appropriate response.

305) If you graphed $x < -3$, would you use a parenthesis or a square bracket? Explain why.

Answer: A parenthesis. A parenthesis means the end point is not included.

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306) If you graphed $x \leq 7$, would you use a parenthesis or a square bracket? Explain why.

Answer: A square bracket. A square bracket means the end point is included.

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

307) The three–part inequality $a < x \leq b$ means "a is less than x and x is less than or equal to b". Which of these inequalities is not satisfied by any real number x?

A) $0 < x \leq 4$ B) $-8 < x \leq -7$ C) $-5 < x \leq -11$ D) $-2 < x \leq 6$

Answer: C

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

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

Answer: When multiplying or dividing by a negative number.

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

Answer: Yes, since $b^2 \geq 0 > b$.

310) In solving the inequality $2x \leq -10$, would you have to reverse the inequality symbol? Explain why.

Answer: No. Dividing by a negative number is not involved.

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