



ALGEBRA I PHASE I
SUMMER PACKET
2022 - 2023

Instructions

The following review has several topics of Pre Algebra/Algebra required for your next level mathematics course.

You must print and turn in **only the practice exercises pages** of this document with your answers. ALL WORK MUST BE DONE ON LOOSE LEAF. Your problems must be numbered and work should be in order and NEAT. Please make sure to staple loose leaf paper containing your work to the packet. IT MUST BE INCLUDED TO RECEIVE CREDIT FOR YOUR SUMMER PACKET.

Answers with no work will receive no credit.

The packet will be graded by percentage of completion. Try your best to answer all questions, even if you are not sure of your answer.

This document is due **THE FIRST DAY OF SCHOOL.**

NO LATE SUBMISSION WILL BE ACCEPTED.

We will be reviewing the packet the first week of school, so make a note of any questions you may have. After reviewing these topics in class, you will be tested at the end of the first week of school on these concepts. **NO CALCULATOR** will be allowed on the quiz, so be sure to practice without the use of a calculator.

Name _____ Date: _____ Middle School: _____

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

Insert <, >, or = to make the statement true.

1) -200 _____ -20 1) _____

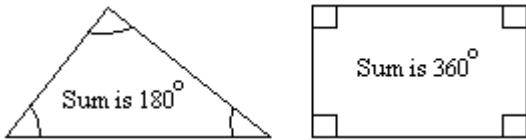
2) $\frac{15}{3}$ _____ $\frac{20}{4}$ 2) _____

3) 0.7 _____ 0.8 3) _____

4) -0.2 _____ -1.0 4) _____

Solve the problem.

5) The sum of the measures of the angles of a triangle is 180° . The sum of the measures of the angles of a rectangle is 360° . Use the inequality symbol \leq or \geq to write a statement comparing the numbers 180 and 360. 5) _____



Write the sentence as a mathematical statement.

6) Forty-eight is not equal to negative forty-eight. 6) _____

7) Forty-six is less than or equal to forty-six. 7) _____

Use an integer to represent the value in the statement.

8) 473 feet above sea level 8) _____

9) The team gave up 9 points. 9) _____

List the numbers in set B that belong to the indicated set.

10) $B = \left\{ 11, \sqrt{6}, -23, 0, \frac{0}{16}, 2\pi, \sqrt{16} \right\}$ 10) _____
 Natural numbers

11) $B = \left\{ 13, \sqrt{5}, -20, 0, \frac{0}{1}, 2\pi, \sqrt{9} \right\}$ 11) _____
 Whole numbers

12) $B = \left\{ 14, \sqrt{7}, -16, 0, \frac{0}{1}, 2\pi, \sqrt{9} \right\}$ 12) _____
 Integers

$$13) B = \left\{ 17, \sqrt{7}, -16, 0, \frac{0}{7}, \sqrt{4}, \frac{-2}{0}, 2\pi, 0.93 \right\}$$

Rational numbers

13) _____

$$14) B = \left\{ 12, \sqrt{8}, -22, 0, \frac{0}{9}, \sqrt{4}, \frac{-5}{0}, 2\pi, 0.72 \right\}$$

Irrational numbers

14) _____

$$15) B = \left\{ 14, \sqrt{6}, -14, 0, \frac{0}{5}, \sqrt{9}, 2\pi, \frac{-5}{0} \right\}$$

Real numbers

15) _____

Tell whether the statement is true or false.

16) Every whole number is a real number.

16) _____

17) Every irrational number is an integer.

17) _____

Find the absolute value of the number.

18) $|-15|$

18) _____

Write the fraction in lowest terms.

$$19) \frac{3}{6}$$

19) _____

$$20) \frac{4}{5}$$

20) _____

Write the number as a product of primes.

21) 70

21) _____

22) 55

22) _____

23) 84

23) _____

Multiply or divide as indicated. Write the answer in lowest terms.

$$24) \frac{2}{7} \cdot \frac{5}{9}$$

24) _____

$$25) \frac{1}{7} \cdot \frac{1}{2}$$

25) _____

$$26) \frac{20}{9} \cdot \frac{1}{8}$$

26) _____

27) $\frac{4}{6} \div \frac{1}{7}$

27) _____

28) $\frac{5}{6} \div \frac{7}{3}$

28) _____

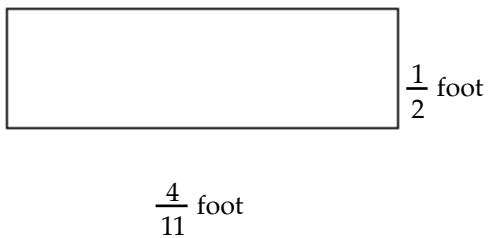
29) $3\frac{1}{3} \cdot 4\frac{1}{6}$

29) _____

Find the area of the figure below. (The area of a rectangle is the product of its length and width. The area of a triangle is $\frac{1}{2}$ the product of its base and height.)

30)

30) _____



Add or subtract as indicated. Write the answer in lowest terms.

31) $\frac{4}{9} + \frac{4}{9}$

31) _____

32) $\frac{3}{5} + \frac{3}{25}$

32) _____

33) $\frac{5}{8} + \frac{4}{7}$

33) _____

34) $\frac{6}{9} - \frac{4}{8}$

34) _____

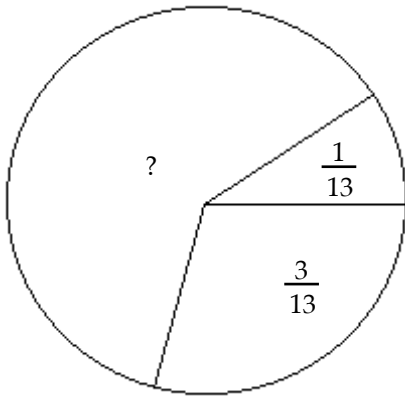
35) $\frac{9}{16} - \frac{1}{12}$

35) _____

The circle represents a whole, or 1. Use subtraction to determine the unknown part of the circle.

36)

36) _____



Solve. Simplify the answer.

37) Jeffrey has two packages. One weighs $2\frac{1}{4}$ ounces, and the other weighs $\frac{5}{9}$ of an ounce.

37) _____

What is the total weight of the two packages?

Write the fraction as an equivalent fraction with the given denominator.

38) $\frac{4}{11}$ with a denominator of 22

38) _____

Evaluate.

39) 5^2

39) _____

40) $\left(\frac{1}{2}\right)^4$

40) _____

41) -6^2

41) _____

42) $\left(\frac{1}{6}\right)^3$

42) _____

43) $(-1)^6$

43) _____

44) $(-4)^3$

44) _____

Simplify the expression.

45) $6^3 + 3^2$

45) _____

46) $\frac{1}{4} + \frac{1}{7} \cdot \frac{1}{5}$

46) _____

47) $7[4 + 2(8 + 6)]$

47) _____

48) $\frac{40(18 - 15) - 6}{3^2 - 3}$

48) _____

Evaluate the expression for the given replacement values.

49) $\frac{14x - 4y}{2}$ $x = 9, y = 3$

49) _____

Provide an appropriate response.

50) Is 4 a solution of the equation $7x - 7 = 21$?

50) _____

Write the phrase as an algebraic expression. Let x represent the unknown number.

51) The quotient of 4 and a number

51) _____

Simplify the expression.

52) $-2 + 4$

52) _____

53) $\frac{-18}{-9}$

53) _____

54) $6 - (8 - 4)^3$

54) _____

Evaluate the expression for $x = -2, y = 3, z = -4$.

55) $7x - 3y - 2z$

55) _____

Solve for variable.

56) $-3n = -15$

56) _____

57) $\frac{n}{-4} = 9$

57) _____

58) $6x - 7 = x - 42$

58) _____

59) $-36 = 7y - y$

59) _____

Provide an appropriate response.

60) Simplify $4x + 3 - 2x + 5$ by combining like terms.

60) _____

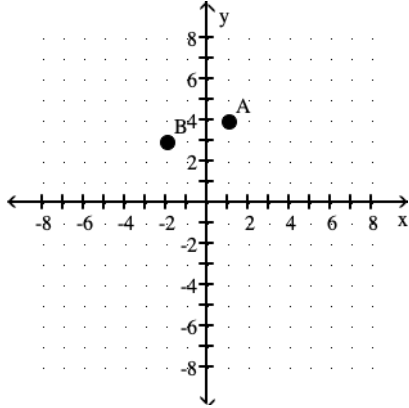
Find the mean, median, and mode of the list of numbers.

61) 20, 32, 41, 42, 46

61) _____

Find the coordinates of the points in the graph.

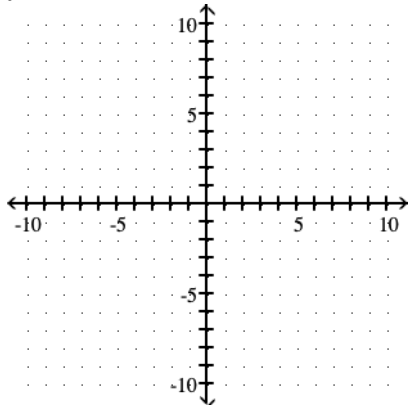
62)



62) _____

Complete and graph the ordered-pair solutions of the given equation.

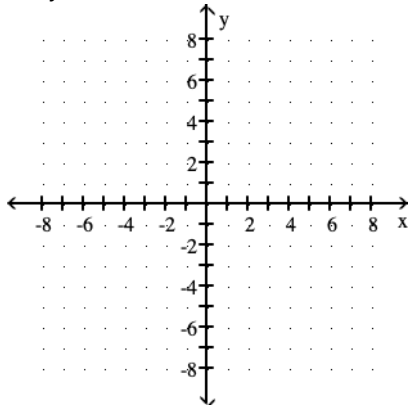
63) $y = 3x - 2$; $(0, \quad)$, $(1, \quad)$, $(-1, \quad)$



63) _____

Graph the linear equation.

64) $x + y = 5$



64) _____

Find the greatest common factor of the list.

65) 20 and 160

65) _____

Factor out the GCF.

66) $5y^2 + 40y$

66) _____

Simplify.

67) $-(-11)$

67) _____

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

Find the additive inverse or opposite.

68) $|-24|$

68) _____

A) -24

B) 0

C) $-\frac{1}{24}$

D) 24

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

Subtract.

69) $-15 - (-5)$

69) _____

70) $-\frac{4}{5} - \frac{7}{10}$

70) _____

71) $-\frac{3}{4} - \left(-\frac{5}{8}\right)$

71) _____

Simplify the expression. (Remember the order of operations.)

72) $25 - (-6) + 11 + (-9)$

72) _____

73) $|-2| - 3^2 - (-7 - 11)$

73) _____

Solve.

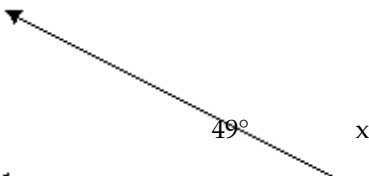
74) The price of a stock rose 5 points, fell 8 points, and again fell 13 points. What was the stock's total change?

74) _____

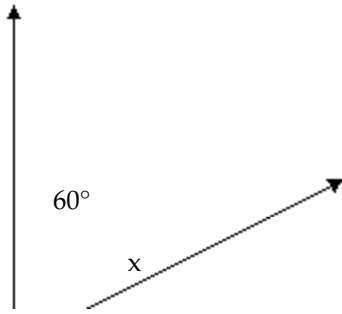
Find the unknown complementary or supplementary angle.

75)

75) _____



76)



76) _____

Translate the phrase to an expression and simplify.

77) Decrease 7 by 6.

77) _____

78) Decrease -7 by -9.

78) _____

Multiply.

79) $(-5)(-5)$

79) _____

80) $(-5)(-3)(0)(4)$

80) _____

81) $(-4)(3)(-4)(-4)$

81) _____

Provide an appropriate response.

82) Find the opposite of -15.

82) _____

83) Find the reciprocal of $-\frac{1}{21}$.

83) _____

Divide.

84) $\frac{0}{-29}$

84) _____

85) $\frac{-16}{-8}$

85) _____

86) $\frac{-90}{0}$

86) _____

87) $-\frac{7}{10} \div \left(-\frac{3}{4}\right)$

87) _____

88) $\frac{4}{9} \div \left(-\frac{4}{9}\right)$

88) _____

Simplify.

89) $\frac{-27}{7+2}$

89) _____

90) $\frac{143+7}{3^2-4}$

90) _____

Solve.

91) Chris lost \$8.59 playing poker in one week. If this continued, what would be his net winnings or losses after five weeks?

91) _____

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

Name the property illustrated by the statement.

92) $(5+9)+4=(9+5)+4$

92) _____

A) distributive property

B) commutative property of addition

C) associative property of addition

D) additive inverse property

93) $(5 \cdot 6) \cdot 1 = 5 \cdot (6 \cdot 1)$

93) _____

A) commutative property of multiplication

B) associative property of multiplication

C) distributive property

D) identity element for multiplication

94) $5 \cdot 3 = 3 \cdot 5$

94) _____

A) associative property of multiplication

B) distributive property

C) commutative property of multiplication

D) identity element for multiplication

95) $12+(18+13)=(12+18)+13$

95) _____

A) identity element for addition

B) commutative property of addition

C) distributive property

D) associative property of addition

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

Use the distributive property to write the expression without parentheses. Then simplify, if necessary.

96) $4(3x+6)$

96) _____

97) $7(4x+3)-2$

97) _____

98) $-(t-2y)$

98) _____

Identify the numerical coefficient of the term.

99) $-10x$

99) _____

100) $-\frac{5}{8}z$

100) _____

Simplify the expression by combining any like terms.

101) $8x - 4 + 2x + 1$

101) _____

102) $11x - 8 + 4x + x + 7$

102) _____

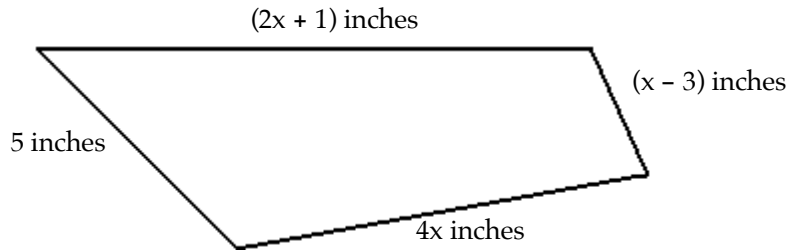
103) $-6m + 6 - 3 + 2 + m - 5$

103) _____

Write the algebraic expression described.

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

104) _____



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

105) $18 = r + 3$

105) _____

106) $\frac{1}{4} + f = 5$

106) _____

107) $5.9 + x = 20.6$

107) _____

108) $12 + 6y = 7y$

108) _____

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

109) $8(3x + 7) = 25x$

109) _____

110) $-4k + 2 + 5k = 6 - 20$

110) _____

111) $3n - 2n - 2 = -2$

111) _____

Find the mean. If necessary, round to one decimal place.

112) 6, 5, 10, 4, 13, 10

112) _____

Find the median. If necessary, round to one decimal place.

113) 8, 5, 23, 19, 50, 42, 37

113) _____

Find the mode or modes (if any).

114) 20, 21, 46, 21, 49, 21, 49

114) _____

115) Turn 95% in to a decimal.

115) _____

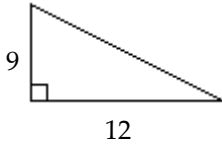
116) Turn 2.56 into a percent.

116) _____

Use the Pythagorean theorem to find the unknown side of the right triangle.

117)

117) _____



Solve.

118) Scott set up a volleyball net in his backyard. One of the poles, which forms a right angle with the ground, is 7 feet high. To secure the pole, he attached a rope from the top of the pole to a stake 5 feet from the bottom of the pole. To the nearest tenth of a foot, find the length of the rope.

118) _____

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

set	inequality symbols	opposites	absolute value	numerator
denominator	grouping symbols	exponent	base	reciprocals
variable	equation	solution		

119) The symbols \neq , $<$, and $>$ are called _____.

119) _____

120) A mathematical statement that two expressions are equal is called a(n) _____.

120) _____

121) The _____ of a number is the distance between that number and 0 on the number line.

121) _____

122) A symbol used to represent a number is called a _____.

122) _____

123) Two numbers that are the same distance from 0 but lie on opposite sides of 0 are called _____.

123) _____

124) The number in a fraction above the fraction bar is called the _____.

124) _____

125) A _____ of an equation is a value for the variable that makes the equation a true statement.

125) _____

126) Two numbers whose product is 1 are called _____.

126) _____

127) In 2^3 , the 2 is called the _____ and the 3 is called the _____.

127) _____

128) The number in a fraction below the fraction bar is called the _____.

128) _____

129) Parentheses and brackets are examples of _____.

129) _____

130) A _____ is a collection of objects

130) _____

Answer Key

Testname: ALGEBRA I PHASE I SUMMER PACKET

- 1) <
- 2) =
- 3) <
- 4) >
- 5) $180 \leq 360$
- 6) $48 \neq -48$
- 7) $46 \leq 46$
- 8) 473
- 9) -9
- 10) 11, $\sqrt{16}$
- 11) 13, 0, $\frac{0}{1}$, $\sqrt{9}$
- 12) 14, -16, 0, $\frac{0}{1}$, $\sqrt{9}$
- 13) 17, -16, 0, $\frac{0}{7}$, $\sqrt{4}$, 0.93
- 14) $\sqrt{8}$, 2π
- 15) 14, $\sqrt{6}$, -14, 0, $\frac{0}{5}$, $\sqrt{9}$, 2π
- 16) True
- 17) False
- 18) 15
- 19) $\frac{1}{2}$
- 20) $\frac{4}{5}$
- 21) $2 \cdot 5 \cdot 7$
- 22) $5 \cdot 11$
- 23) $2 \cdot 2 \cdot 3 \cdot 7$
- 24) $\frac{10}{63}$
- 25) $\frac{1}{14}$
- 26) $\frac{5}{18}$
- 27) $\frac{14}{3}$
- 28) $\frac{5}{14}$
- 29) $13\frac{8}{9}$
- 30) $\frac{2}{11}$ sq ft

Answer Key

Testname: ALGEBRA I PHASE I SUMMER PACKET

31) $\frac{8}{9}$

32) $\frac{18}{25}$

33) $\frac{67}{56}$

34) $\frac{1}{6}$

35) $\frac{23}{48}$

36) $\frac{9}{13}$

37) $2\frac{29}{36}$ oz

38) $\frac{8}{22}$

39) 25

40) $\frac{1}{16}$

41) - 36

42) $\frac{1}{216}$

43) 1

44) -64

45) 225

46) $\frac{39}{140}$

47) 224

48) 19

49) 57

50) yes

51) $\frac{4}{x}$

52) 2

53) 2

54) -58

55) -15

56) 5

57) -36

58) -7

59) -6

60) $2x + 8$

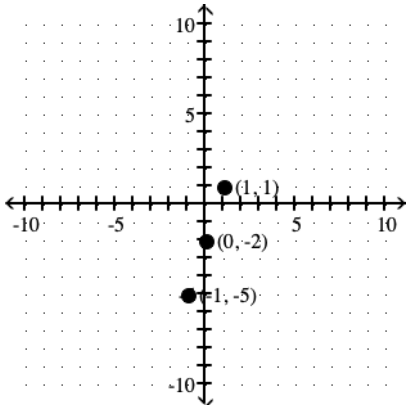
61) mean: 36.2; median: 41; no mode

62) A(1, 4); B(-2, 3)

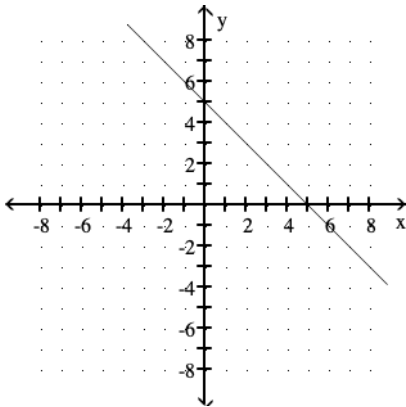
Answer Key

Testname: ALGEBRA I PHASE I SUMMER PACKET

63) $(0, -2), (1, 1), (-1, -5)$



64)



65) 20

66) $5y(y + 8)$

67) 11

68) A

69) -10

70) $-\frac{3}{2}$

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

72) 33

73) 11

74) -16 points

75) 131°

76) 30°

77) 1

78) 2

79) 25

80) 0

81) -192

82) 15

83) -21

84) 0

85) 2

Answer Key

Testname: ALGEBRA I PHASE I SUMMER PACKET

86) undefined

87) $\frac{14}{15}$

88) -1

89) -3

90) 30

91) -\$42.95

92) B

93) B

94) C

95) D

96) $12x + 24$

97) $28x + 19$

98) $-t + 2y$

99) -10

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

101) $10x - 3$

102) $16x - 1$

103) $-5m$

104) $(7x + 3)$ in.

105) 15

106) $\frac{19}{4}$

107) 14.7

108) 12

109) 56

110) -16

111) 0

112) 8

113) 23

114) 21

115) 0.95

116) 256%

117) 15

118) 8.6 ft

119) inequality symbols

120) equation

121) absolute value

122) variable

123) opposites

124) numerator

125) solution

126) reciprocals

127) base, exponent

128) denominator

129) grouping symbols

130) set