



Pre-AP Algebra 1 Summer Math Packet

Congratulations! You will soon be learning Algebra I!

This summer math packet is a review of some of the concepts learned in your pre-algebra class which are needed when you begin your Algebra I course in August. It will assure that all students begin the school year on the same page and with equal opportunity to learn and build upon mathematical concepts that should have been learned in previous courses.

Instructions for completing the packet:

- Please print the packet or use loose leaf paper to complete the packet by hand showing all work. Work must be neat and legible.
- Please use your notes or the websites provided to help you if you need reminders on how to complete some practice problems.
- Take notes as you complete your work. You will be given a quiz on this material the first week of school.
- Work on the packet with your friends. Help each other. Every student is responsible for knowing the material in this packet when you return in August. We will review as a team and everyone will be expected to participate.
- Bring your packet to our first class together. It will be collected for a grade. Only packets done with paper and pencil will be accepted.

Helpful Websites:

<http://www.mathtv.com/>

<http://www.purplemath.com/modules/index.htm>

<https://www.khanacademy.org>

Helpful for graphing functions:

<https://www.education.ti.com/en/resources/family-of-functions>

Summer Packet - Pre AP Algebra I

Name: _____ Date: _____ Middle School: _____

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

1) $-\frac{4}{23}$ _____ $-\frac{3}{23}$

2) $\frac{30}{5}$ _____ $\frac{24}{4}$

3) 0.3 _____ 0.4

4) -7.2 _____ -5.4

Write the sentence as a mathematical statement.

5) Forty-one is not equal to negative forty-one.

6) Fifteen is less than or equal to seventeen.

Use an integer to represent the value in the statement.

7) a decrease of 106 feet in elevation

8) The team scored 17 points.

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

9) $B = \left\{ 12, \sqrt{5}, -24, 0, \frac{0}{3}, 2\pi, \sqrt{16} \right\}$
Integers

10) $B = \left\{ 19, \sqrt{5}, -12, 0, \frac{0}{9}, \sqrt{25}, \frac{-6}{0}, 2\pi, 0.28 \right\}$
Rational numbers

11) $B = \left\{ 16, \sqrt{6}, -4, 0, \frac{0}{2}, \sqrt{16}, 2\pi, \frac{-2}{0} \right\}$
Real numbers

12) $B = \left\{ 18, \sqrt{6}, -21, 0, \frac{0}{4}, 2\pi, \sqrt{4} \right\}$
Natural numbers

Find the absolute value of the number.

13) $|3|$

14) $|-16|$

Write the fraction in lowest terms.

15) $\frac{12}{21}$

16) $\frac{84}{108}$

Write the number as a product of primes.

17) 42

18) 60

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

19) $\frac{8}{17} \div \frac{3}{8}$

20) $4 \cdot 5\frac{11}{14}$

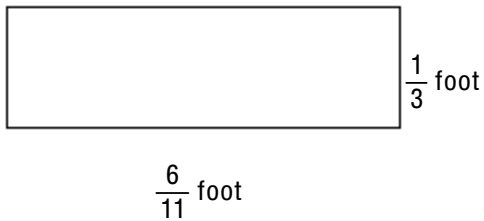
21) $4\frac{1}{6} \cdot 2\frac{2}{5}$

22) $7\frac{3}{5} \div \frac{1}{5}$

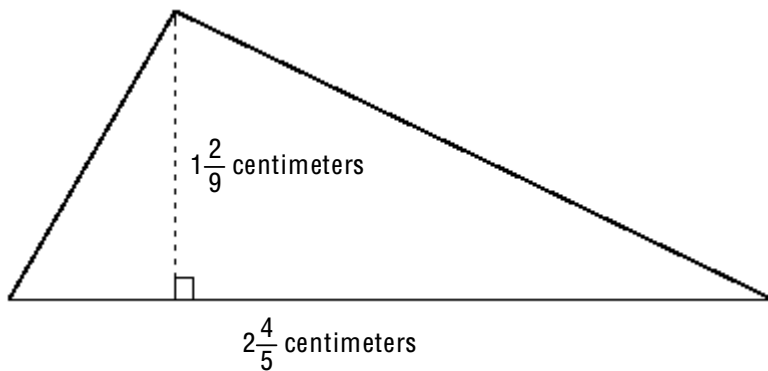
23) $3\frac{5}{6} \div 4\frac{7}{18}$

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.)

24)



25)



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

26) $\frac{4}{9} + \frac{1}{6}$

27) $10 - \frac{8}{3}$

28) $12\frac{1}{3} + 4\frac{5}{8}$

29) $5\frac{2}{9} - 2\frac{5}{6}$

30) $\frac{5}{9} + \frac{2}{3} - \frac{1}{6}$

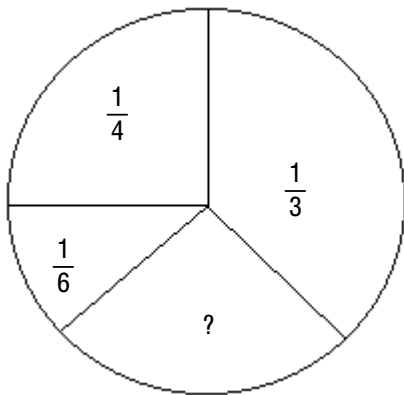
Solve. Simplify the answer.

31) Last week, Samantha ran 18 miles. This week, she ran $16\frac{3}{4}$ miles. How much more did she run last week?

32) To obtain a certain shade of paint, Peter mixed $8\frac{1}{2}$ gallons of white paint with $2\frac{1}{4}$ gallons of brown paint and $2\frac{2}{3}$ gallons of blue paint. How much paint did he have?

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

33)



Evaluate.

34) -9^2

35) $\left(-\frac{1}{6}\right)^2$

36) $(0.04)^2$

37) $(-1)^{14}$

38) $(-4)^3$

Simplify the expression.

39) $8^2 - 4 \cdot 2$

40) $\frac{1}{4} + \frac{1}{6} \cdot \frac{1}{7}$

41) $\frac{8}{5} \cdot \frac{2}{7} + \frac{5}{6} \cdot \frac{2}{5}$

42) $(7 + 4)[2 + (7 + 8)]$

43) $[27 - (4 + 6) \div 2] - [1 + 21 \div 3]$

44) $\frac{32(9 - 6) - 6}{3^2 - 3}$

45) $\frac{16 + |12 - 3|}{13 - 5}$

Evaluate the expression for the given replacement values.

46) $(x + 2y)^2$ $x = 4, y = 4$

47) $2y + \frac{60}{x}$ $x = 5, y = 7$

48) $\frac{y}{z} + 2x^2$ $x = 6, y = 16, z = 4$

49) Neglecting air resistance, the expression $16t^2$ gives the distance in feet an object will fall in t seconds. Complete the chart below.

Time t (in seconds)	Distance $16t^2$ (in feet)
0	
2	
4	

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

50) One-third times a number

51) The quotient of 20 and a number

52) Five times a number decreased by 28

Add.

53) $-24 + 14$

$$54) -\frac{1}{5} + \left(-\frac{1}{5}\right)$$

$$55) |3 + (-6)|$$

$$56) -8.7 + (-2.5)$$

$$57) [6 + (-1)] + [5 + (-25)]$$

Solve.

58) A bike road race starts at an elevation of 670 feet and passes through 5 stages where the elevation changes by -349 feet, -86 feet, 10 feet, 177 feet, and 67 feet. At what elevation does the race end?

59) The price of a stock rose 8 points, fell 14 points, and again fell 15 points. What was the stock's total change?

60) Mariel the Magician died in the year 12 A.D. at the age of 53. In what year was she born?

Subtract.

$$61) -8 - (-5)$$

$$62) -5 - (-5)$$

$$63) -\frac{3}{4} - \frac{5}{8}$$

$$64) -\frac{4}{5} - \left(-\frac{7}{10}\right)$$

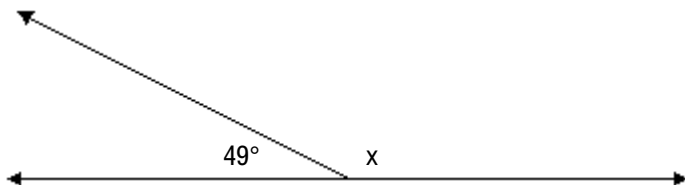
Simplify the expression. (Remember the order of operations.)

$$65) 23 - (-13) + 10 + (-20)$$

$$66) |-1| - 4^2 - (-1 - 6)$$

Find the unknown complementary or supplementary angle.

67)



Multiply.

$$68) (-5)(-3)(0)(6)$$

$$69) (-2)(4)(-3)(-3)$$

Perform the indicated operations.

$$70) (-5)(-1)(-7) - (-4)$$

Provide an appropriate response.

71) Find the reciprocal of $-\frac{1}{9}$.

Divide.

72) $\frac{0}{-45}$

73) $\frac{-72}{-9}$

74) $\frac{-16}{0}$

75) $-\frac{9}{14} \div \left(-\frac{1}{4}\right)$

76) $\frac{3}{7} \div \left(-\frac{3}{7}\right)$

Simplify.

77) $\frac{73 + 7}{3^2 - 4}$

78) $\frac{|8(-2)| - |11 - 9|}{|8(3)|}$

Decide whether the given number is a solution of the given equation.

79) Is 9 a solution of $-6x + 8 = -46$?

80) Is 6 a solution of $-8x - 5 = x + 8$?

Solve.

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

Name the property illustrated by the statement.

82) $(6 + 4) + 9 = (4 + 6) + 9$

- A) commutative property of addition
- C) associative property of addition

- B) distributive property
- D) additive inverse property

83) $19 + (6 + 22) = (19 + 6) + 22$

- A) associative property of addition
- C) identity element for addition

- B) distributive property
- D) commutative property of addition

84) $(5 \cdot 7) \cdot 1 = 5 \cdot (7 \cdot 1)$

- A) commutative property of multiplication
- C) associative property of multiplication

- B) identity element for multiplication
- D) distributive property

85) $4 \cdot 8 = 8 \cdot 4$

A) identity element for multiplication

C) distributive property

B) associative property of multiplication

D) commutative property of multiplication

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

86) $\frac{1}{4}(12x - 8)$

87) $-(x - 9w)$

88) $-(-5m + 5n - 9p)$

Simplify the expression by combining any like terms.

89) $11x + 9 + 4x + x - 3$

90) $8x^2 - 9x - 8 + 4x - 6 + 5x^2$

91) $-9m + 3 - 2 + 5 + m - 6$

Simplify the expression. First use the distributive property to remove any parentheses.

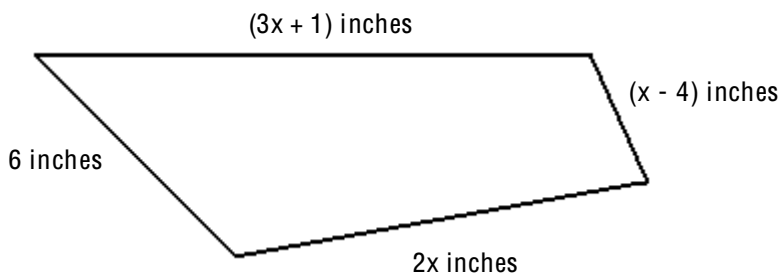
92) $5(6n - 10)$

93) $-6(4r + 7) + 6(3r + 4)$

94) $-4(2x - 5) - 4x + 9$

Write the algebraic expression described.

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



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

96) $11 + 9y = 10y$

97) $\frac{1}{5} + f = 6$

98) $3.3 + x = 18.4$

99) $2(2z - 2) = 3(z + 4)$

100) $8n - 7n - 4 = -4$

101) $\frac{x}{26} = \frac{2}{13}$

102) $9y = 7(2y - 7)$

Solve. If needed, round money amounts to two decimal places and all other amounts to one decimal place.

103) 15% of students at a university attended a lecture. If 5000 students are enrolled at the university, about how many students attended the lecture?

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

104) 6, 6, 9, 6, 13, 10

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

105) 10, 5, 22, 10, 46, 36, 32

Find the mode or modes (if any).

106) 20, 38, 46, 38, 49, 38, 49

107) Turn 95% in to a decimal.

108) Turn 2.56 into a percent.

Factor out the GCF from the polynomial.

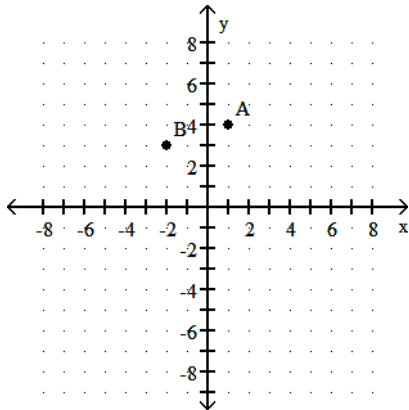
109) $50x + 10$

Factor the trinomial completely. If the polynomial cannot be factored, write "prime."

110) $x^2 + 14x + 45$

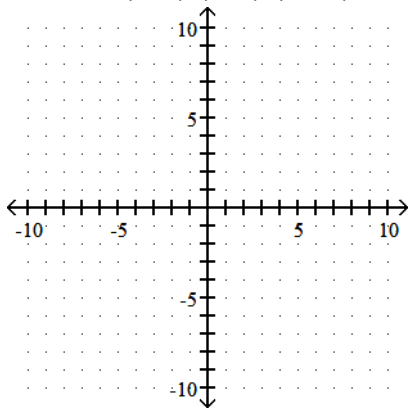
Find the coordinates of the points in the graph.

111)



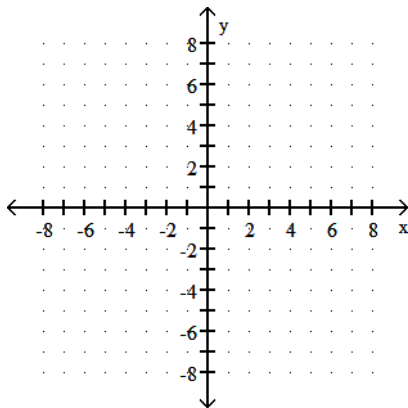
Complete and graph the ordered-pair solutions of the given equation.

112) $y = 3x - 2$; (0,), (1,), (-1,)



Graph the linear equation.

113) $x + y = 5$



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		

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

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

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

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

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

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

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

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

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

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

124) Parentheses and brackets are examples of _____.

125) A _____ is a collection of objects