

Algebra I Summer Packet

Summer 2018

Name: _____

The following packet contains content that you should have learned in previous Mathematics courses along with a vocabulary section. You will be expected to demonstrate proficiency with these topics on a graded assessment during the first/second week of school in September. It is not required that you complete this packet, but rather it is meant as a tool to help you review the material in preparation for your 2018 - 2019 Math course.

CALCULATORS SHOULD NOT BE USED.

Evaluate: use: $x = 2$ and $y = 3$

1) $6x + (4x^2 - 5y)^{10} + 2$

2) $\frac{3x-9y}{(xy)^2}$

Evaluate: use $x = \frac{3}{4}$ $y = \frac{2}{5}$

3) $5x + \frac{2}{3}y$

4) $\frac{3}{4}x - 2y$

Solve:

5) $9x + 5 = 32$

6) $5(x - 4) = 11$

7) $3x + 7 = 9x - 23$

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

9) $3x + 2 - 9x + 4 = 4x + 3$

10) $-3(5 - 2x) = 5(x + 2)$

11) The cost of purchasing a medium ice cream sundae is \$2.50 and then \$.40 for each additional topping.

a) Write an equation that represents this information. (Check vocabulary section at back of packet)

b) How much will it cost if you order a medium sundae with three toppings? (Show all work)

12) Create an expression that has a positive coefficient and a negative constant. (Check vocabulary section at back of packet)

13) Use the following math sentence to answer questions below: $5x + 7 > 40$

a) What type of math sentence is listed above? (Check vocabulary section at back of packet)

b) Pick two different numbers and show that each is a solution to the math sentence above.

c) Find the product of these two numbers you chose.

d) Which perfect square is your area closest to?

14) A local youth girls' soccer team, The Heartbreakers, is trying to hire a trainer. They have narrowed their search down to two final candidates. Candidate # 1 – John, charges a \$50 fee and then \$12 per girl. Candidate # 2 – Ethan charges a \$90 fee and then \$8 per girl.

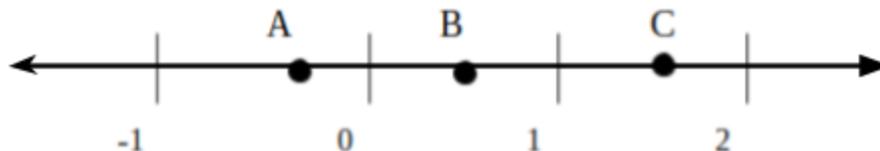
a) Write a separate equation that represents **each** trainer.

b) How much would it cost to use each trainer if there were 8 girls per team. (Show all work)

c) How many girls would have to come to training in order for the cost of each trainer to be the same? (Set your equations equal to each other and solve. Show all work)

d) If the soccer team has 16 girls, which trainer would you recommend the team choose and why? (Give a written explanation and show your work to back up your answer.)

15) Using the number line below, write an approximation for each point A, B, and C, having each number you write be a **different type** of rational number. Explain the reason that each number you wrote is rational. (Check vocabulary section at back of packet)



16) Several mistakes were made while simplifying the problem below. Find the mistakes and explain what was done incorrectly. Don't correct the mistakes, just identify what they are, explain why it was incorrect and then continue looking for other mistakes.

- $3 + 5(2)^3 + 5(8 - 6)^2$
- $3 + (10)^3 + 5(2)^2$
- $3 + 100 + 5(4)$
- $103 + 5(4)$
- $108(4)$
- 432

17) Simplify the expression correctly below. (Show all work)

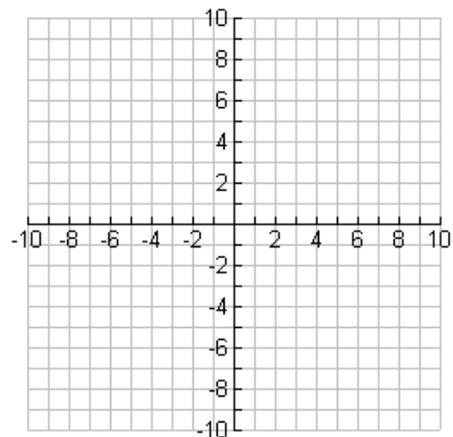
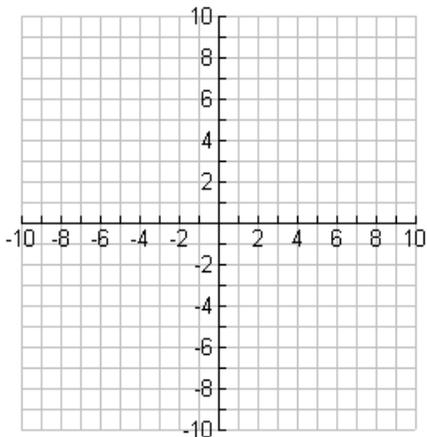
$$3 + 5(2)^3 + 5(8 - 6)^2$$

18) Find the sum of all of the prime numbers between 30 and 40? (Check vocabulary section at back of packet)

Solve for y. Make an x-y table using at least 4 points. Graph each equation.

19) $y = 3x - 5$

20) $3y + 2x = 6$



expressions.

Ex. $8x + 5 = 12$

Ex. $2x + 3y = 12$

Inequality: A mathematical sentence formed by placing one of the symbols $<$, \leq , $>$, or \geq between two expressions.

Ex. $9x + 5 > 20$

Rational Number: A number that can be written as $\frac{a}{b}$ where a and b are integers and $b \neq 0$. All fractions are rational. All repeating and terminating decimals are rational.

Ex. 2, -5, $\frac{3}{5}$, $\sqrt{4}$, 2.5, -3.44444...

Irrational Numbers: A number that cannot be written as the quotient of two integers. A number that cannot be written as a fraction. A decimal that does not repeat or terminate.

Ex. 4.567238..., $\sqrt{3}$, π

Factors: One of two or more numbers, algebraic expressions, or the like, that when multiplied together produce a given product; a divisor:

Ex. 6 and 3 are factors of 18

Perfect square: The square of an integer.

Ex. 25 is a perfect square because it is $5 \cdot 5$. 49 is a perfect square because it is $7 \cdot 7$

List of the first twenty perfect squares (square numbers) : 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225, 256, 289, 324, 361, 400