Summer Work for Algebra 1
Part 1

Dear Students,

We hope you are all having a wonderful and relaxing summer. You will find Part 1 of your summer math assignment below. This part of your summer math should take around 2 hours to complete. You will have 4 total parts that will all be due on the first day of class. We strongly recommend that you work on each part when it is posted throughout the summer. As you are working, please take note of any problems with which you are having difficulty, and we can address those questions in the first few days of class.

Some things to keep in mind while you are working:

1. **All work is to be complete for the first day of school.**

2. **All work is to be done neatly in pencil on separate graph paper.**

3. **Show steps for EVERY PROBLEM. We are interested in both your process and accuracy.**

4. **You may use your notes and texts to do these problems, but please don't ask anyone other than a teacher for help. Calculators are legal where stated!**

5. **Grades will be based on effort, not correctness.**

6. **The grade you earn will play a significant role in your first marking period grade and effort grade.**

7. **Some of the questions may cover topics you have not seen, and that is to be expected. Just make your best written attempt on each problem, and you'll get a strong grade!**

Have a great summer.

1. Write an algebraic expression for the phrase: *the quotient of c and 4.*

2. Define a variable and write an expression for the phrase: *the sum of 17 and twice a number.*

3. Define variables and write an equation to model the situation:
    The perimeter of an equilateral triangle equals 3 times the length of a side.

4. Simplify the expression: $15 \cdot 11 - 6$

5. Evaluate $r + st$, for $r = 49$, $s = 3$, and $t = 9$.

6. Simplify the expression:

$$3(-7 + 7 \cdot 5 - 2) \div 2$$

7. Evaluate the expression for $u = 9$ and $v = 6$.

$$u + 3 - 5v + 12$$

8. Simplify the expression:

$$3(x^2 + 2x - 1)$$

9. Name the set(s) of numbers to which the following numbers belong. Your choices are whole numbers, integers, rational numbers, and real numbers

a) 4   _____

b) $\dfrac{1}{3}$ _____

c) -5 _____

d) $\sqrt{7}$ _____

10. Use <, =, or > to compare.

    a. $-\dfrac{3}{10}$ ☐ $-\dfrac{1}{3}$

    b.   0.36 ☐ $\dfrac{7}{20}$

    c. $\left|-13\right|$ ☐ $\left|-10\right|$

11. Order the numbers in the group from least to greatest.

         0.5600, 0.5606, 0.57, 5.7, 0.056

12. Simplify:

       $-14 + 7$

Questions 13-15 are free response questions. Please answer these questions in detail, using full sentences. You may type your answers and attach them if you wish.

13. What is PEMDAS? Why do we use it?

14. If you enter 4÷3×2 on your calculator and then enter 4÷(3×2) on your calculator, you get different answers. Why?

15. What is an absolute value? Why are absolute values important? Give an example of a situation in your life where absolute values apply.

Name _____

Summer Work for Algebra 1
Part 2

Dear Algebra I Students,

I hope you are all having a wonderful and relaxing summer. You will find Part 2 of your summer math assignment below. This part of your summer math should take around 2 hours to complete. You will have 4 total parts that will all be due on the first day of class. As you are working, please take note of any problems with which you are having difficulty, and we can address those questions in the first few days of class.

Some things to keep in mind while you are working:

1. All four parts of this packet will be collected on the first day of class.
2. All work is to be done in pencil in the space provided in the packet.
3. Show steps for EVERY PROBLEM. I am interested in both your process and accuracy.
4. You may use your notes and texts to do these problems, but please don't ask anyone other than me for help. Calculators are legal where stated!
5. Grades will be based on effort, not correctness.
6. The grade you earn will play a significant role in your first marking period grade and effort grade.
7. Some of the questions may cover topics you have not seen, and that is to be expected. Just make your best written attempt on each problem, and you'll get a strong grade!

Have a great summer, and I will see you all soon!

1. Simplify the expression:
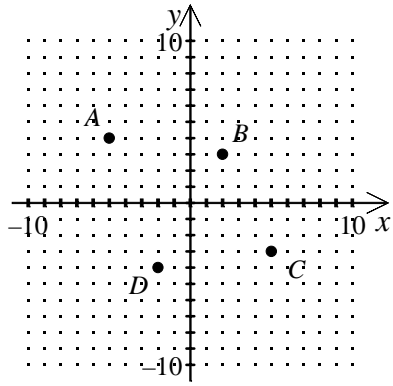
$$1\frac{1}{3} - \frac{5}{7}$$

2. Simplify the expression: $-7.2 - 3.6$

3. Evaluate the expression: $\frac{a}{b}$, for $a = \frac{5}{6}$ and $b = \frac{7}{12}$
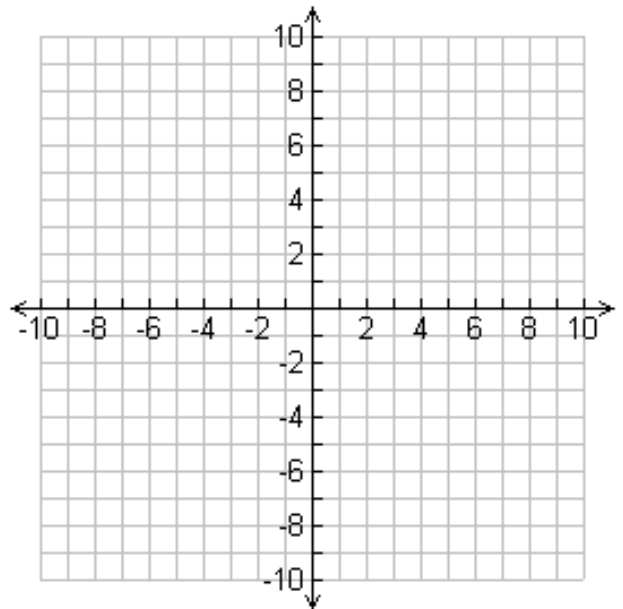
4. Simplify the expression:

$$\frac{1}{7}(70c + 42)$$

5. Name the coordinates of the points *A*, *B*, *C*, and *D*.

6. Graph the points on the same coordinate plane.
   a. A (2, 5)

   b. B (9, -2)

   c. C (5, 2)

   d. D (-6, -8)

3

7. Solve the equation for n.

$$-3n + 18 + 5n = 38$$

8. Solve the equation.

$$4w + 3 = 2w + 18$$

9. The width of a rectangle is one fourth its length. The perimeter of the rectangle is 60 cm.

    a.   Define a variable for the length. Write an expression for the width in terms of the length.
    b.   Write an equation to find the length of the rectangle. Solve the equation.
    c.   What is the width of the rectangle?

Questions 10-12 are free response questions. Please answer these questions in detail, using full sentences. You may type your answers and attach them if you wish.

10. Every player on the soccer team owes Maria money for new sweatshirts. There are 19 total players on the team, and the cost was divided equally among them. Carly, a player, only owes Maria $3 because she has already paid for part of her sweatshirt. If the total amount of money that Maria is owed is $192.90, how much money does each player owe?

    Please write an equation, and then explain your process.

11. If the point (3, 7) is translated 5 units to the left and 3 units down then reflected about the y-axis, what are the coordinates of the new point? Explain.
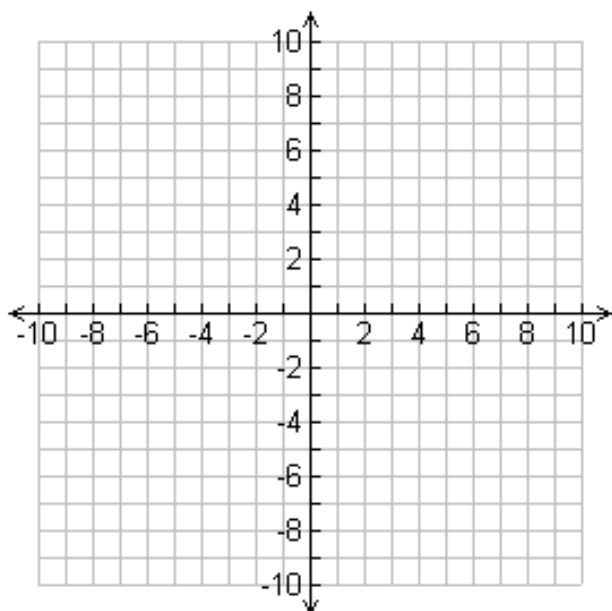
12. The more students that help to clean up from a dance, the less total time it will take to clean. The formula $t = \dfrac{3}{s}$ shows how the time (t) in hours relates to the number of students (s).

    a. If there is one student cleaning, how much time does it take? Explain.

    b. If there are four students cleaning, how much time does it take? Explain.

    c. If there are 100 students cleaning, how much time does it take? Explain.

    d. Will it ever take 0 hours to clean? Why?

    e. Will it ever take more than 3 hours to clean? Why?

    f. Is this direct or inverse variation? (You may need to look this up in your book.)

Summer Work for Algebra 1
Part 3

Dear Students,

I hope you are all having a wonderful and relaxing summer. You will find Part 3 of your summer math assignment below. This part of your summer math should take around 2 hours to complete. You will have 4 total parts that will all be due on the first day of class. I strongly recommend that you work on each part when it is posted throughout the summer. As you are working, please take note of any problems with which you are having difficulty, and we can address those questions in the first few days of class.

Some things to keep in mind while you are working:

1. **All work is to be complete by the first day of class.**
2. **All work is to be done neatly in pencil on separate graph paper.**
3. **Show steps for EVERY PROBLEM. I am interested in both your process and accuracy.**
4. **You may use your notes and texts to do these problems, but please don't ask anyone other than me for help. Calculators are legal where stated!**
5. **<u>Grades will be based on effort, not correctness.</u>**
6. **The grade you earn will play a significant role in your first marking period grade and effort grade.**
7. **Some of the questions may cover topics you have not seen, and that is to be expected. Just make your <u>best written attempt on each problem,</u> and you'll get a strong grade!**

1. Graph the inequality on a number line.

   $m \leq 8.4$

2. Define a variable for the situation. Then, write and graph an inequality.

   All real numbers less than 50 or greater than 100

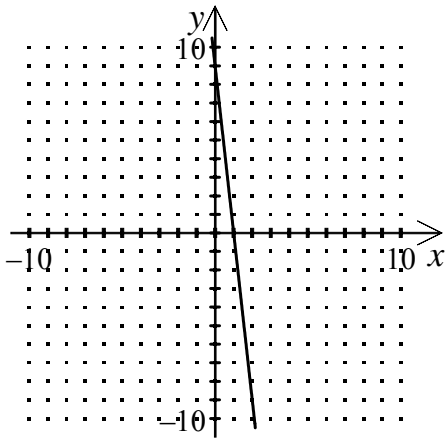3. Solve the inequality. Graph the solution on a number line and check your solution.

   $-7x \geq 63$

4. Solve the proportion using the property of means and extremes.

   $$\frac{4}{10y} = \frac{2}{11}$$

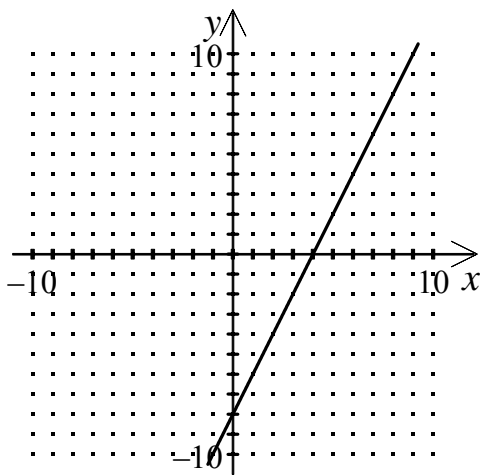5. What is 67% of 700?

6. Find the slope of the line.

7. Find the slope of the line that passes through the pair of points.

(5, 4) and (9, 1)

8. Find the slope and *y*-intercept of the equation.

$$y = \frac{3}{4}x - 9$$

9. Write the slope-intercept form of the equation for the line.

Questions 10-12 are free response questions. Please answer these questions in detail, using full sentences. You may type your answers and attach them, if you wish.

10. Jason would like to ride his bike to the park. For the first 3 minutes, his speed is 10 miles per hour, then he gets tired and slows down to 5 miles per hour for the next 5 minutes. After he realizes he is going to be late, he speeds up to 15 miles per hour for the last 2 minutes until he arrives. Graph Jason's velocity vs time for his 10-minute trip.

11. Using the information provided in question 10 above, graph Jason's distance vs. time for his 10 minute trip. Will this be the same graph? Why? How are they related, if at all?

12. Graph the equation y = 2x - 5
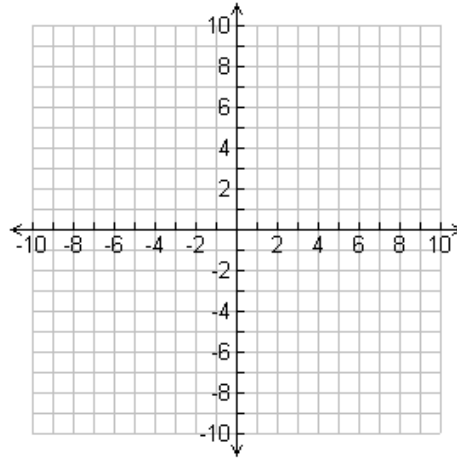
a. Is the point (1, -3) on the line?

b. If you plug in 1 for x and -3 for y in the equation above, what happens?

c. Is the point (5, 10) on the line?

d. If you plug in 5 for x and 10 for y in the equation above, is the statement true or false?

e. Write a paragraph connecting the ideas from parts a-d above.

Summer Work for Algebra 1
# Part 4

Dear Students,

I hope you are all having a wonderful and relaxing summer. You will find Part 4 of your summer math assignment below. This part of your summer math should take around 2 hours to complete. You will have 4 total parts that will all be due on the first day of class . I strongly recommend that you work on each part when it is posted throughout the summer. As you are working, please take note of any problems with which you are having difficulty, and we can address those questions in the first few days of class.
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1. All work is to be complete by the first day of class.

2. All work is to be done neatly in pencil on separate graph paper.

3. Show steps for EVERY PROBLEM. I am interested in both your process and accuracy.

4. You may use your notes and texts to do these problems, but please don't ask anyone other than me for help. Calculators are legal where stated!

5. <u>Grades will be based on effort, not correctness.</u>

6. The grade you earn will play a significant role in your first marking period grade and effort grade.

7. Some of the questions may cover topics you have not seen, and that is to be expected. Just make your <u>best written attempt on each problem,</u> and you'll get a strong grade!

1. Use the slope and *y*-intercept to graph the equation:

$$y = -x + 2$$
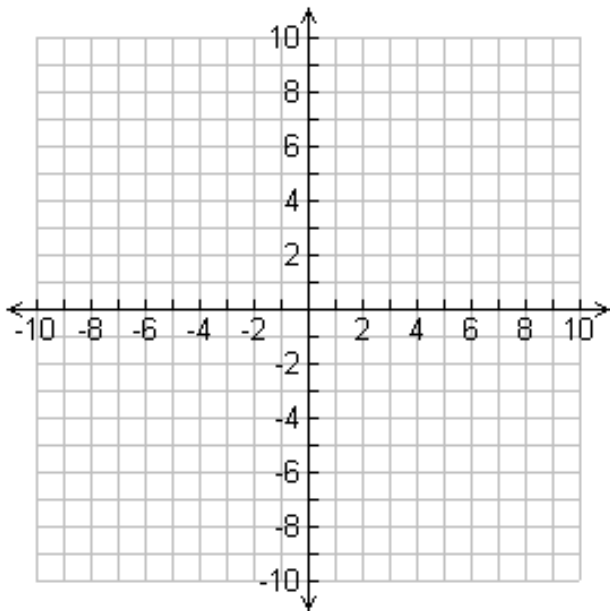
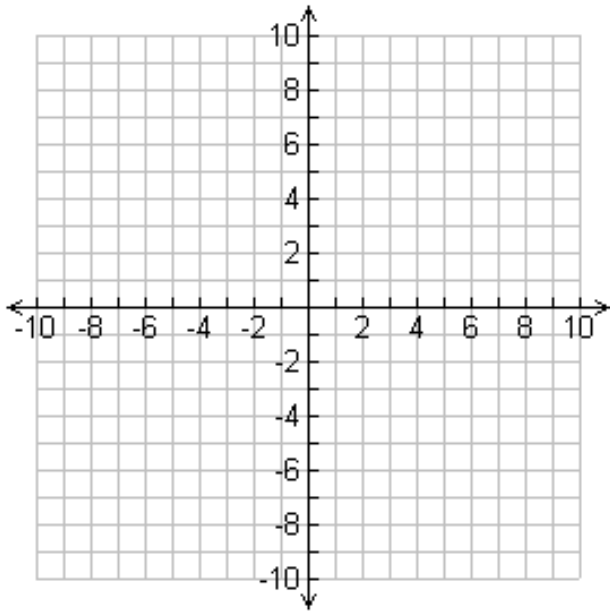
2. Solve the system using substitution.

$$y = 4x - 5$$
$$y = 5x$$

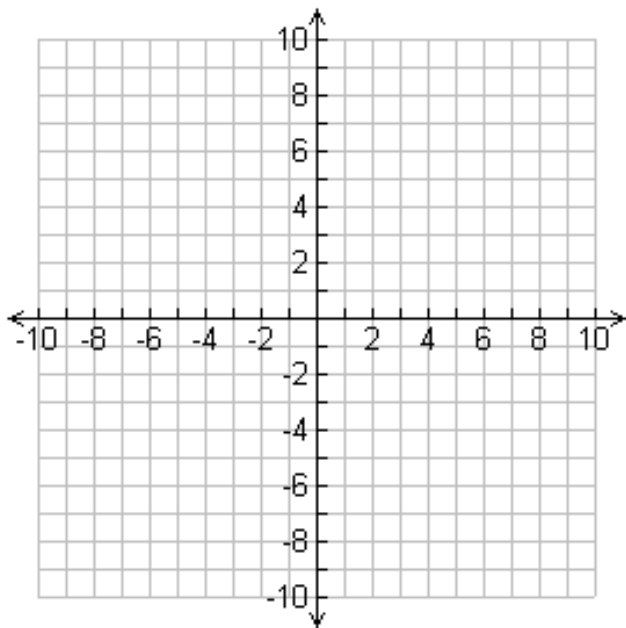3. Graph both of the following equations. Where do they intersect?

$$y = 3x - 8$$
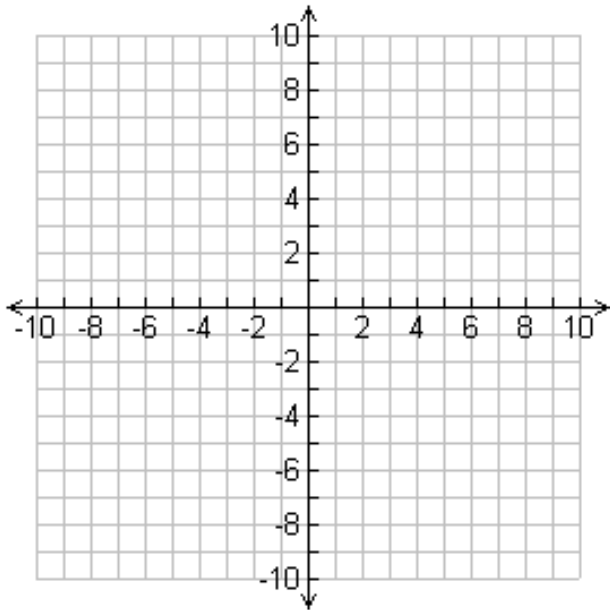$$y = -3x + 4$$

4. Graph the linear inequality.

$$y \le 3x - 6$$

5. Graph both of the following inequalities on the graph below. Is there a region that is shaded twice?

$$y \geq 2x - 1$$
$$y > -5$$

Questions 6-7 are free response questions. Please answer these questions in detail, using full sentences. You may type your answers and attach them if you wish.

6. We are going to the grocery store with $30.21 in our pocket, and we want to buy three times as many apples as oranges. If apples cost 39 cents each and oranges cost 60 cents each, how many oranges can we buy? Please do not "guess and check" for this problem, but rather think about equations that you can set up. Explain how you arrived at your answer.

7. Why does it help to use Algebra in the problem above instead of guessing and checking? Why is it helpful to learn and use Algebra in general?

8. List the three toughest problems in Parts 1-4 of this summer work.

9. List three concepts in math that you feel very confident in.

10. List two concepts in math (either from this packet or your classes in the past) that you would like to work on.

11. List one fun thing that you have done this summer.