Course: Algebra 2/Trigonometry

Instructor: Grant Gilchrist

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Name of Assignment: Summer Review

What student will know, understand, or be able to do and why this learning matters:
Algebra II/Trig consists of a great deal of Algebra I material. I often refer to the course as "Algebra I on steroids," at least for the first few months. In order to ensure that we are successful at the start of the year, it is important that each student reviews and refreshes the fundamental components of Algebra I that will be used in Algebra II/Trig. This includes:

- Simplifying Expressions
- Solving Linear Equations
- Graphing Lines (standard, slope y-intercept, and point-slope forms)
- Absolute Value (simplifying, solving and graphing)
- Inequalities (simplifying, solving and graphing)
- Solving systems of equations by graphing, substitution and elimination

Directions:

Acceptable Resources

Feel free to use the internet, textbooks, friends and tutors as guides as you complete the packet. If you copy or use an app to complete the work, without learning anything, you will miss the point entirely. The intention is for you to review and learn material that will be essential throughout the year, and for you to be successful on the review test at the beginning of the year. Please email me if you have any questions!

WITHIN THE FIRST WEEK OF SCHOOL, WE WILL HAVE A TEST OVER THE MATERIAL IN THIS PACKET.

Due Dates

I have broken the Summer Work into 3 sections with 3 due dates. You may either complete the work in Notability and submit as a pdf, or complete the Summer Work on paper and submit a scan of the page as a pdf. Work done on paper must be dark enough to read, and the picture clear enough to see clearly. Please submit via email to ggilchrist@marisths.org or submit them to the appropriate Schoology assignments, if Schoology is available.

Section #1: Finish on or before Wednesday, August 26th
Section #2: Finish on or before Wednesday, September 2nd
Section #3: Due at the start of class on the first day of school (September 9th)

Grading Policy

I will grade this packet based on amount of work shown and correctness. Follow all directions carefully—including the questions that ask you to check your work. The point you earn on this summer work will count as homework points. Summer work that is not submitted on its due date will receive at most 75% credit (depending on quality of work and degree of lateness).
REMEMBER, YOU WILL BE TESTED ON THIS MATERIAL DURING THE FIRST WEEK OF SCHOOL.

(Please do not submit or staple this first page.)

SUMMER HW#1 Email to ggilchrist@marisths.org by Wed., August 26th **Name: _____**

Show your work Box Your Answers Calculators Allowed Simplify All Fractions

Evaluate (find the numerical answer by following the order of operations)

1) $18 - 6 + 60 \div 3 \cdot 2^2$

2) $-x^3 - x^2 - x - 4$ if $x = -4$

3) $-2x^2 + 6x - 3$ if $x = -6$

4) $\frac{2}{3} + \frac{1}{2} - 3\frac{1}{4}$ (give solution as a simplified fraction)

5) $-\frac{6}{5} \div 2\frac{2}{3}$ (give solution as a simplified fraction)

6) $3 - \frac{11}{3}$ (give solution as a simplified fraction)

Simplify the following expressions (use the order of operations and the distributive property to eliminate fractions and combine all like terms).

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

8) $6x^2 - 12x + 4x^2 - (3x - 1)$

9) $2(x + 3)^2 + 4x - 3$ [note: $(x + 3)^2 \neq x^2 + 9$]

10) $(6x - 2)(3x + 4)$

SUMMER HW#1 (continued) **Due Wednesday, August 26th** **Graded based on correctness**

Solve (find the value of x to make the initial equation a true statement). **Check your solutions (this is required)**

11) $3x - 6 = 12$

12) $\frac{2}{3}x - 4 = 2$

13) $\frac{2x-4}{3} = 2$

14) $3x - 2(x + 4) = 6x - 9$

15) $\frac{3}{4} + \frac{2}{3}x = \frac{1}{2} - \frac{x}{5}$ (do you remember how to clear fractions?)

16) $\frac{3}{5} = \frac{x}{7}$ (hint: this is a proportion)

17) $\frac{x+3}{x} = \frac{2}{5}$

18) $\frac{4}{5}x - 7 = \frac{3}{4}x + 10$

19) $\frac{x}{4} + 3 = 2 + \frac{x}{3}$

SUMMER HW#1 (continued) **Due Wednesday, August 26th** **Graded based on correctness**

Solve and graph the following inequalities. Remember! When you multiply or divide both sides of an inequality by a *negative* number, the inequality switches direction (the arrow flips). Check your solutions.

20) $x + 3 < 2x - 5$

21) $4 - (2x + 5) > 3x + 1$

22) $\frac{2}{3}x \leq -12 \text{ or } x - 5 > 9$

23) $-33 \leq -7x - 12 < -26$

24) $-4x + 5 < 10x - 23$ and $-2x + 11 > 22$

25) $x + 1 \leq -3$ or $-4n < -8$

Evaluate the absolute value expressions. (Find a single numerical result)

26) $\left|6-2(4)\right|$

27) $6+2\left|-4-2a^2\right|$ if a = -10

Solve the absolute value equations. (Remember there's potentially 0, 1 or 2 solutions).

28) $\left|x+7\right|=10$

29) $10-3\left|x-5\right|=12$

SUMMER HW #2 Due on or before midnight on Wed, September 2nd. **Name:**_____

Email as pdf to ggilchrist@marisths.org**.**

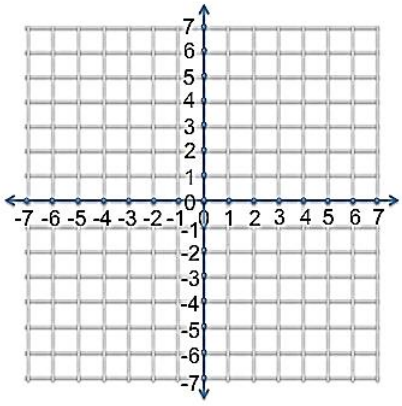
Show your work

Box Your Answers Calculators Allowed Simplify All Fractions

Graph the following equations. Identify which form the equation is in (slope y-intercept, standard, point-slope, or neither). Make a table of at least 5 inputs and outputs (x-values and y-values). Identify the x- and y-intercepts (these might not be whole numbers. If they aren't whole numbers, give them to the nearest tenth or as a reduced fraction).

1) $y = 3x - 4$ Form:_____

x	y

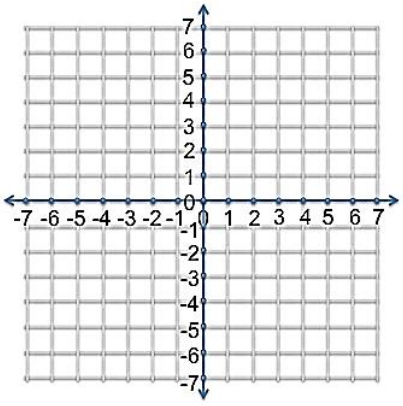


x – int:

y – int:

2) $y = -x + 2$ Form:_____

x	y

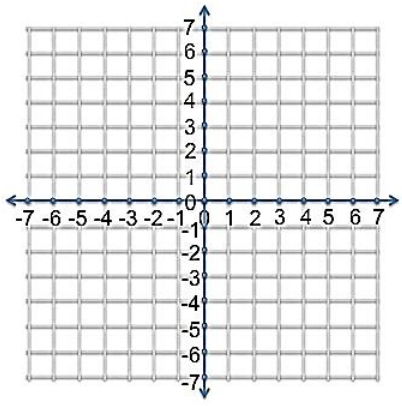


x – int:

y – int:

3) $y = -\frac{2}{3}x + 6$ Form: _____

X	y

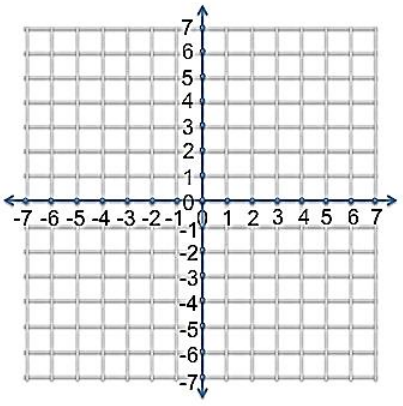


x-int:

y-int:

4) $y = 7$ Form:_____

x	y



x-int:

y – int:

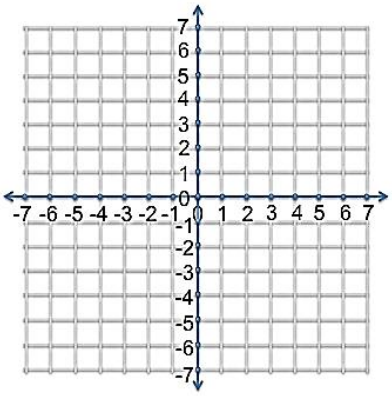
5) Give the equation of a line parallel to $y = \frac{3}{4}x + 10$ that contains the point (-2, 5). It can be written in any form.

SUMMER HW #2 (continued) **DUE Wednesday September 2nd** **Graded based on correctness**

Graph the following equations. The directions are the same as #1-4 from the previous page.

6) $5x - 2y = 10$ Form: _____

x	y

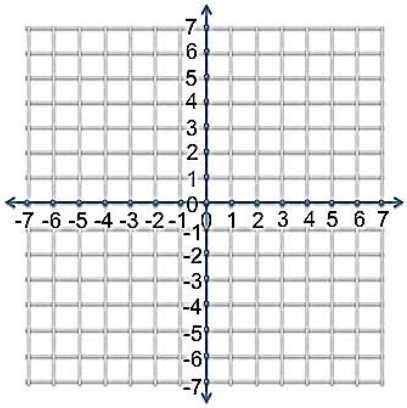


x-int:

y-int:

7) $y - 4 = \frac{2}{3}(x + 5)$ Form:_____

X	y

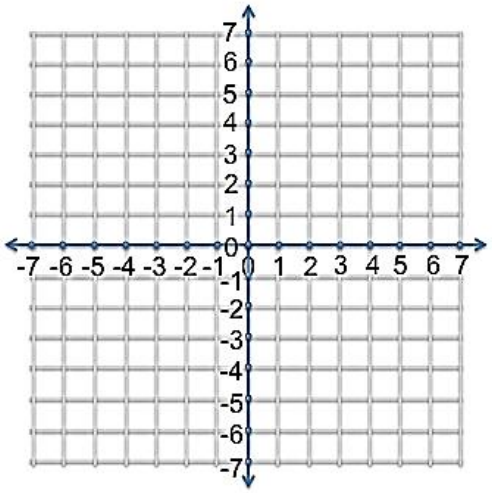


x – int:

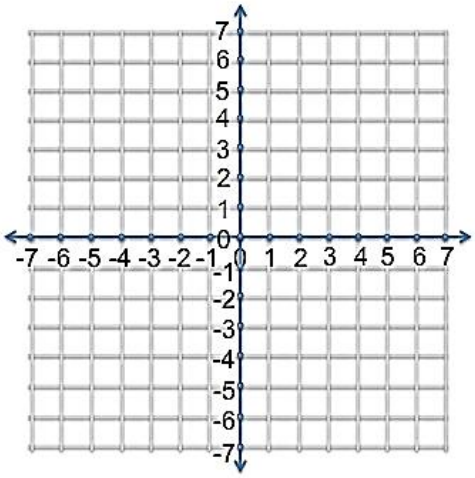
y – int:

Graph and shade the linear inequalities. (Hint: Double-check whether you want a solid or a dashed line!)

8) $y > -3x + 5$



9) $2x - 4y < 12$



SUMMER HW #2 (continued) **DUE Wednesday September 2nd** **Graded based on correctness**

For questions 10 -12, determine whether the lines through each pair of points are **parallel, perpendicular, or neither.**

10) $(-1,-3)$ and $(2,-8)$; $(8,-7)$ and $(9,10)$

11) $(0,-4)$ and $(5,-1)$; $(-6,8)$ and $(3,-7)$

12) $(5,4)$ and $(9,7)$; $(-6,0)$ and $(-2,3)$

14a) Write the equation of the line passing through $(4,-7)$ and parallel to the line whose equation is $3x + y = 9$. You may write the equation in any form (i.e. slope-intercept, point-slope, standard form, but point-slope is recommended).

14b) Change the word "parallel" to "perpendicular" in the above problem, and complete it again.

15a) Write the equation of the line passing through $(4,-7)$ and *parallel* to the line whose equation is $3x + 4y = 9$. You may write the equation in any form (i.e. slope-intercept, point-slope, standard form).

15b) Change the word "parallel" to "perpendicular" in the above problem, and complete it again.

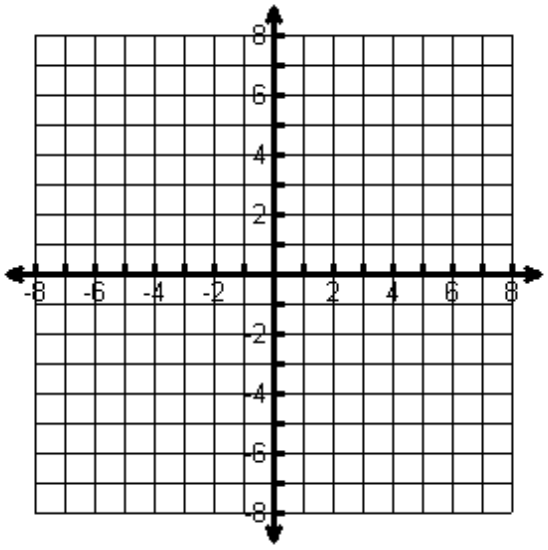
SECTION #3 Due on Wednesday, September 9th at start of class Name:_____

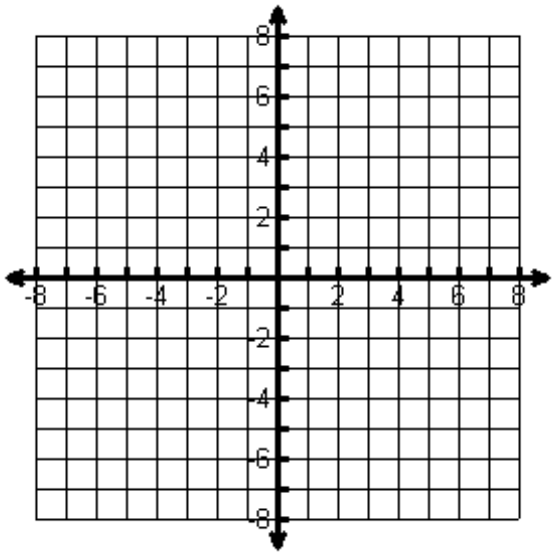
Show your work Box Your Answers Calculators Allowed Simplify All Fractions

For questions 1-2, graph the two lines given below and find their EXACT point of intersection. You may have to use algebra or your graphing calculator if the intersection is not at integer coordinates.

1) $y = -3x + 2$ and $y = \frac{2}{3}x - 5$

2) $y - 4 = \frac{1}{2}(x + 3)$ and $2x + 5y = 14$





Solve the systems of equations using substitution or elimination. (find the one point that works in both equations. Remember, there could be 0, 1 or infinite solutions).

3) $6x + 4y = -8$

$y = \frac{1}{2}x + 2$

4) $2x + 5y = 31$

$4x - y = 7$

5) $6x - 4y = 10$

$-9x + 6y = -15$

SECTION #3 **Due on Wednesday, September 9th, at the start of class** **Graded based on correctness**

For questions 6-9, you may solve the system of equations using any method you prefer.

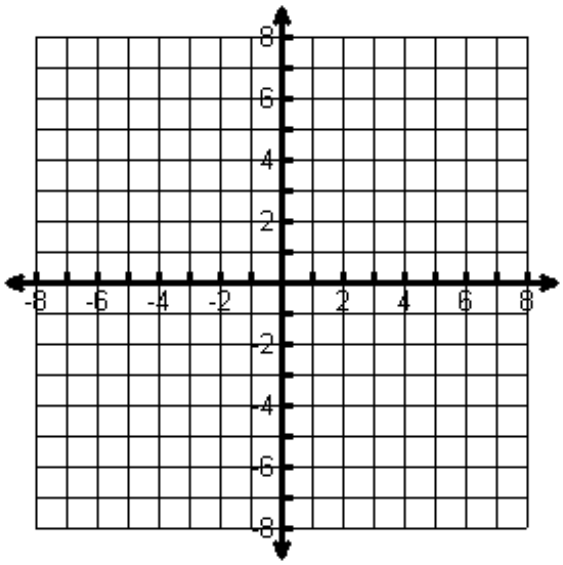
6) $\begin{aligned} 3x - 4y &= -1 \\ -6x + 8y &= 2 \end{aligned}$

7) $\begin{aligned} x + 3y &= -4 \\ 3x + 2y &= 3 \end{aligned}$

8) $\begin{aligned} 2x + y &= 5 \\ y + 2x &= 7 \end{aligned}$

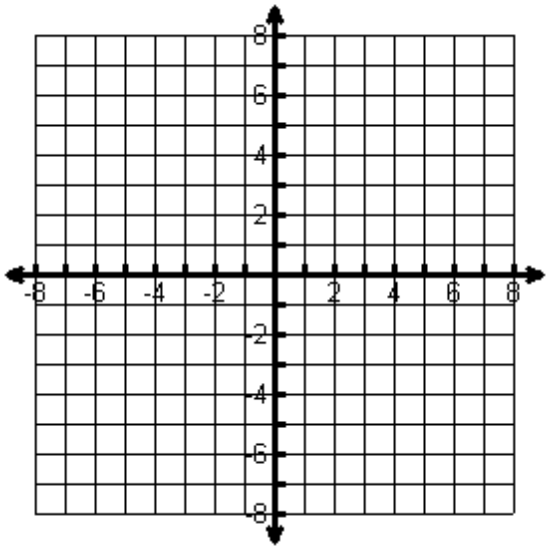
9) $\begin{aligned} 6x + 8y &= 39 \\ y &= 2x - 2 \end{aligned}$

10) Give an example of system of equations with **no solutions**. Your example can be a graphing example OR you can list two equations that have no solutions.



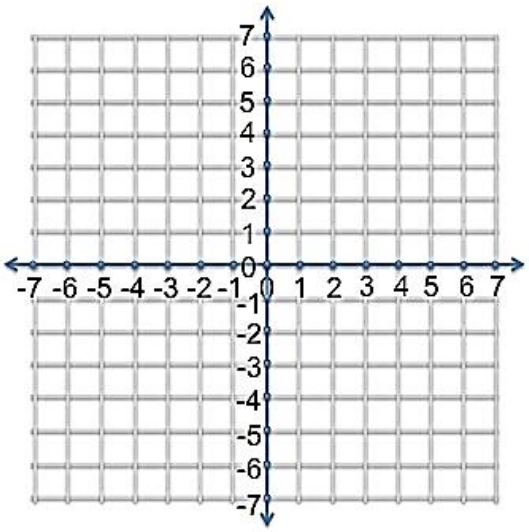
SECTION #3 **Due on Tuesday, September 9th, at the start of class** **Graded based on correctness**

11) Give an example of system of equations with a solution at $(-2,7)$. You can use the coordinate plane to the right as a guide, but must list two equations that have the point as a solution.



12) Graph the system of linear inequalities and identify the solution.

$$2x - y > -4$$
$$x \geq 0$$



13) Graph the system of linear inequalities and identify the solution.

$$y > \frac{5}{6}x - 3$$
$$y \geq \frac{-2}{3}x + 4$$