Algebra II Honors Summer Packet
Summer 2018

Name: _____

The following packet contains content that you should have learned in previous Mathematics courses. 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 he material in preparation for your 2018 - 2019 Math course.

Solve: (Keep answer as a fraction)

1) $-2x-5[8-\frac{2}{3}(11-4x)-2]+1=-7-(2-9x)+\frac{3}{4}(6-3x)$

Solve: (No decimal answers)

2) $7x - 2(2 - 4x) + 1 = \frac{1}{2}(20x - 17) + 5(x - 3)$

3) $\frac{8x+5}{4} = \frac{7x-9}{3}$

4) Explain in writing what your answer means from question # 2 above.

Write an equation and solve:

5) A number added to $\frac{1}{7}$ of the number is 19. What is the number? (No decimal answers. Fractions only)

6) You are taking some of your friends with you to go see a movie for your birthday. Your parents give you $150 to pay for yourself and your friends. You want to spend a total of $60 for food and it costs $8.50 per person to see the movie.

a) Write and solve an **inequality** (not an equation) that represents this information.

b) What is the total number of people that can attend the movie? Explain your answer.

7) The length of a rectangular field is 45 ft. greater than its width, w ft. How much fencing, in terms of w is needed to enclose the field and divide it vertically into two parts? Draw and label a picture. Show all work. Your answer here will be in terms of w. You cannot figure out a numerical answer.

Solve and graph on a number line: (No decimal answers)

8) $7x - 15 + 20x > -9x + 4$

9) $-4 <- 5x + 9 \leq 10$

Let a **and** b **represent the lengths of the legs of a right triangle, and let** c **represent the length of the hypotenuse. Find the unknown length.**

(Show all equations and work - Please give two versions of these answers for each problem – one as a simplified radical and the 2nd as a decimal rounded to the nearest hundredth)

10) $a = 4, \quad c = 6$

11) $a = 3, \quad b = 8$

12) Last week in a basketball game, Doug made 11 baskets and scored 27 points. Some of the baskets were 2-point shots and some of the baskets were 3-point shots. How many of each type of shot did Doug make? (Write and solve a system of equations – show all work)

Solve: (Absolute value equations should each have two answers. Remember that you cannot distribute though absolute value bars. Isolate the absolute value and then solve the equation. Show all work and again, no decimal answers)

13) $7|5x - 4| = 2\ 1$

14) $-5|9x - 4| + 8 = -14$

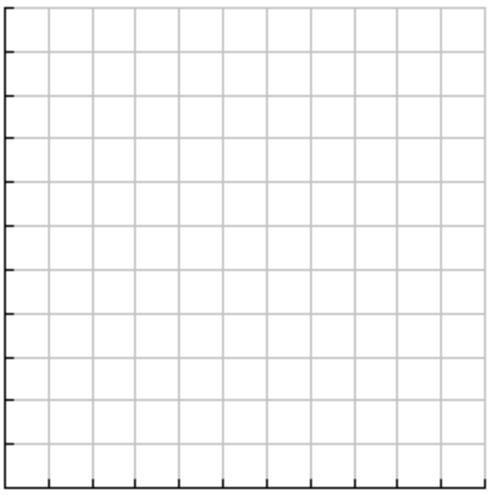
15) A dance studio charges a monthly cost and a one-time registration fee. A student who attended for 6 months was charged $1380, while a student who attended for 13 months was charged $2780.

a) Write a linear equation ($y = mx + b$) that models the total cost, T, in terms of the number of months, n. (Show all work)

b) What does the slope represent in this problem?

c) What does the y-intercept represent in this problem?

d) Graph and properly label this situation below.



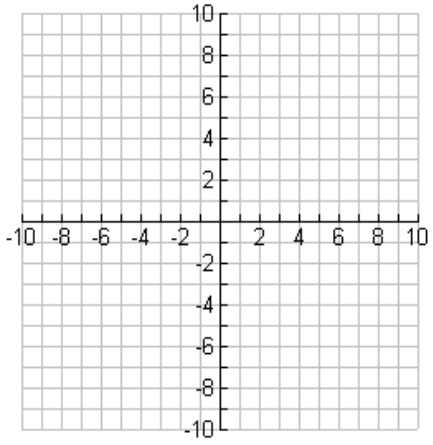
16) Given the equation: $x + 2y = 6$

a) Find each of the following: **Show all work**.

- Slope
- x-intercept: (Write as an ordered pair)
- y-intercept: (Write as an ordered pair)

b) Graph the line on the coordinate plane below.

c) A right triangle is formed by the intersection of the x-axis, the y-axis, and the line whose equation is $x + 2y = 6,$ which you graphed below. What is the area of this triangle? (**Show all work**)



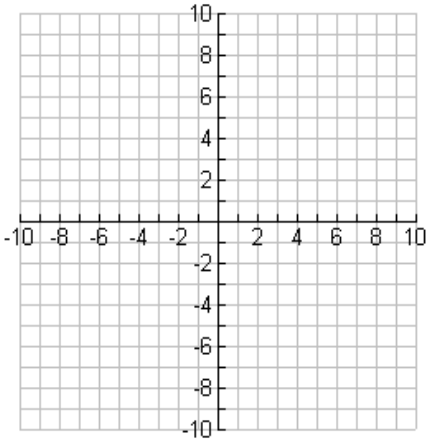
Solve and graph on a number line: (Keep all answers as fractions)

17) $|9x - 5| > 13$

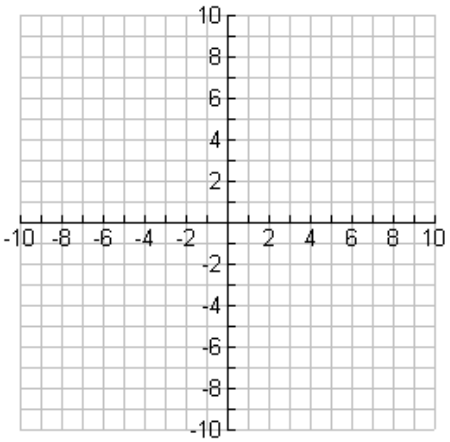
18) $-6|8x + 9| - 3 \geq -22$

19) Explain what the vertical line test is and what it is used for. Create an example of a graph that passes the vertical line test on coordinate plane # 1. Create an example of a graph that fails the vertical line test on coordinate plane # 2.

Coordinate Plane # 1

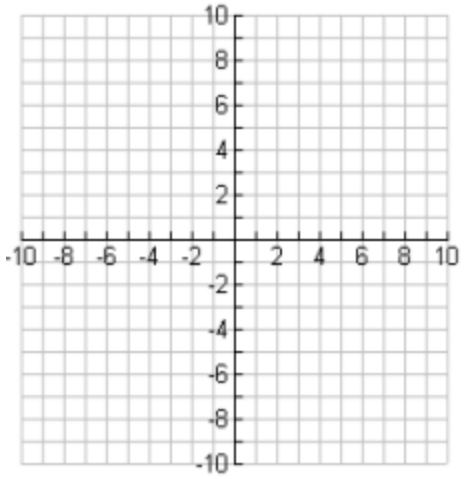


Coordinate Plane # 2



Graph each absolute value function. Label the vertex and domain and range.

20) $y = -3|x + 5| - 2$

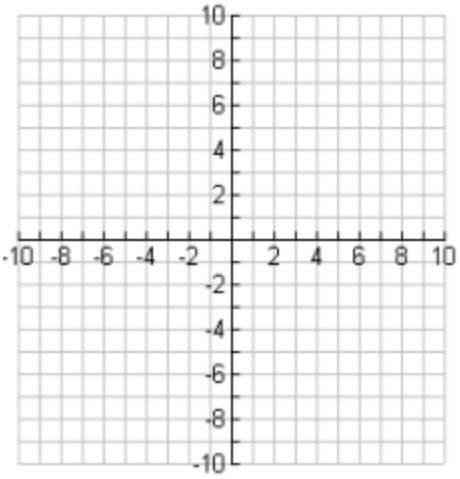


vertex: _____

domain: _____

range: _____

21) $f(x) = |x - 3|$

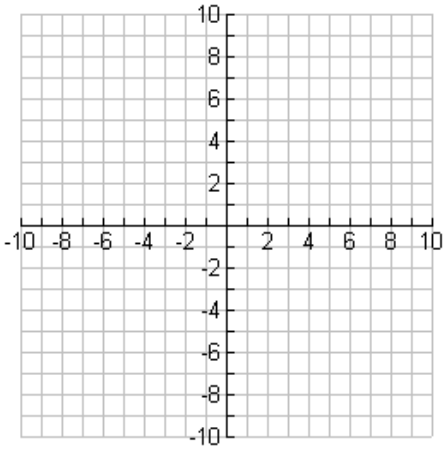


vertex: _____

domain: _____

range: _____

22) $y = \frac{-3}{4}|x - 1| + 5$

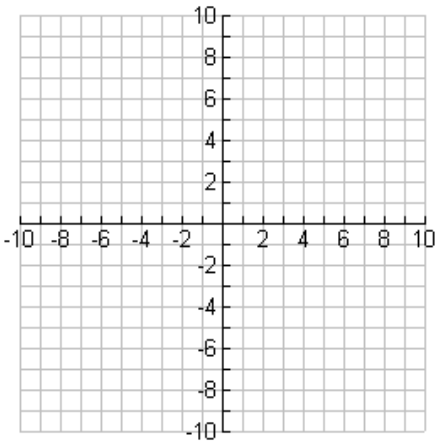


vertex: _____

domain: _____

range: _____

23) $y = 5|x| - 3$



vertex: _____

domain: _____

range: _____

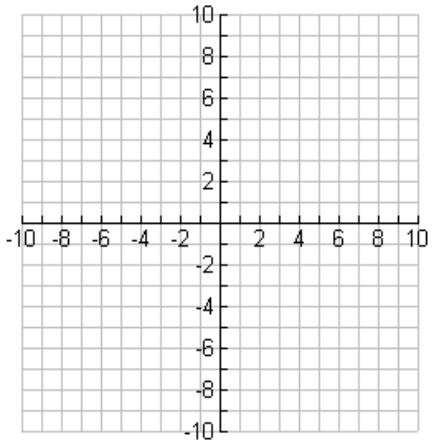
24) Write an equation of a line in standard form that passes through $(7,-5)$ and is perpendicular to the line $9x - 4y = -24$. (Show all work)

Solve for G Show all work)

25) $H = 3R(2B - G) - 4$

26) Use the coordinate plane below.

a) Graph the line $2x + 7y = 21$. Label as line A.



b) Create an equation for **and** graph a line that is parallel to line A. Label this as line B.

c) Create an equation for **and** graph a line that is perpendicular to line A. Label this as line C.

d) Create an equation for **and** graph a line that is neither parallel nor perpendicular to line A. Label this as line D.