Geometry Honors Summer Assignment

From Mr. Drelick (STEM Supervisor)
Welcome Future High Point Students!
As schedules can change during the summer, and placement in Geometry Honors is in part determined by your Spring 2023 SLA scores, please do not begin this assignment till July 17th to ensure schedule accuracy.

Please reach out with any questions.
Mr. Drelick

From Mrs. Sabo (Geometry H Teacher)
Welcome to all my Future Students!

For the summer we have an algebra review packet to keep you up to date with your skills. There is a no calculator section and a section where you are allowed to use a calculator. Please do this packet on your own. No photomath. I am using this assignment to see where we all are and what I should review in the Fall. Please mail or drop off the assignment by August 3, 2023. All work is to be shown. Pencil only please. Please scan and save your work as a backup. If you have any questions please email me at ksabo@hpregional.org.

Enjoy the summer!
Mrs Sabo

PS
For our class you will need 2 binders, loose leaf paper, pencils, three ring pencil bags that can lock into your binder and a calculator.

Honors Geometry Name_____

Summer Assignment 2023

Part I: There will be **no calculators** used for this part of the assignment. If your answer is not a whole number then express it as a reduced improper fraction. All work is to be shown. Pencil only.

Use order of operations to simplify each.

1. $-4 + 3^2 - 2(2+5) + 2^3$
2. $14 - (4 - 1)^2 + 12 \div 4 \bullet 3$

Multiply or divide as indicated.

1. $3/4 \div 2/9$
2. $-4 \bullet -3/8$
3. $12 \div 2/3$

Compare . Write <, > or =.

1. 2^3 ___ 3^2
2. -5^2_____ $(-5)^2$
3. $(1/2)^3$ _____ $(1/3)^3$
4. -2^3___ $(-2)^3$

Solve each of the equations below. Show all work.

1. $x/6 - 10 = -3$
2. $5(x- 4) + 2= 17$
3. $\frac{1}{2}(4x-16) - 12 = 20 + 3(x + 4)$
4. $x/4 - \frac{1}{2} = 5$
5. $17= 3(x-5) +8$
6. $-10 - 5x = -1/3(12x + 36)$

Solve for the indicated variable.

1. d=rt for t
2. A=1/2bh for h
3. X=3y + 1 for y

4. 4a + 4b = c for b.

Solve each proportion.

1. $\frac{x+5}{4} = \frac{x-1}{3}$
2. $\frac{2}{y-4} = \frac{y+4}{-6}$
3. $\frac{-2}{5+y} = \frac{-3}{y-7}$

Express each fraction as a percent. . *no work needed

1. ½ _____
2. ¾ _____
3. 1/3 _____
4. 1/5 _____

Express each decimal as a percent. . *no work needed

1. .24 _____
2. .009 _____
3. .06 _____
4. 1.25 _____

Solve each inequality and graph on the number line.

1. $4(y-1) + 5 \geq 13$

_____

2. $|\ 2x+1\ | \leq 7$

_____

3. $-2y + 4 < -5y - 11$

_____

4. $-3 < x + 2 < 10$

_____

5. Kara has $120 in the bank and deposits $20 per month. Steve has $150 in the bank and deposits $15 per month in his account. For how many months will Steve have a larger bank account balance than Kara?

Writing, Evaluating and graphing functions.

1. Determine the relationship between the x and y values. Write an equation which represents this table of value.

X	3	4	5	6	7
Y	7	9	11	13	15

2. Evaluate the function for the given values.

   For $f(x) = - x^2 - 5$, find $f(x)$ when $x = -4$.

3. Ice skating costs $4 per hour plus $5.50 for skate rentals. Write an equation in slope intercept form.

Find the slope of the line that contains each pair of points. Simplify your answer.

1. (4, -3) and (5, -7)
2. (2, 6) and (2, 9)
3. (-5, 7) and (2, 7)

Write the equation of the line in slope intercept form.

1. Write the equation of the line given a slope of 3 and passes through the point (2, 5).

2. Write the equation of the line given the two points (-1, 4) and (9, 14).

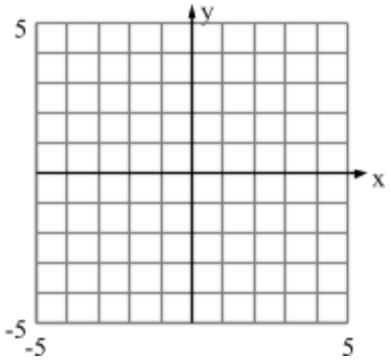
3. Write the equation of the line **parallel** to y=3x + 5 passing through the point (2, -1).

4. Write the equation of the line **perpendicular** to y=2/3x + 1 passing through the point (8, 5).

Graph the following linear equations by finding the *x*- and *y* –intercepts.

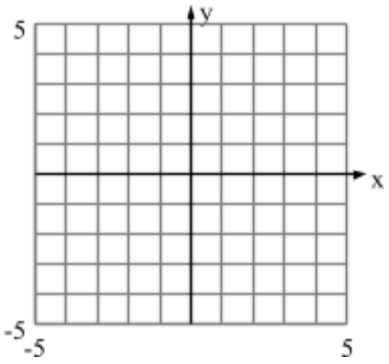
1. 4x +12y = 12

x-int = _____ y -int = _____



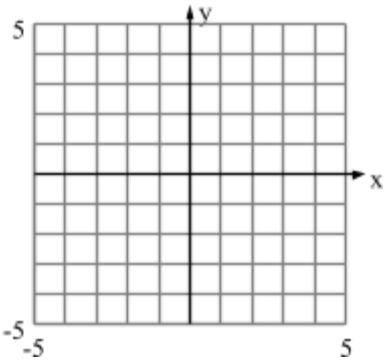
2. 2x + 4y= -8

x-int = _____ y -int = _____

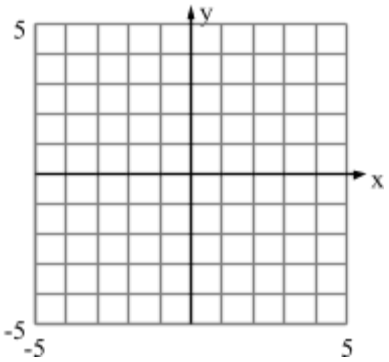


Graph the special lines below.

1. Graph the line y= -3



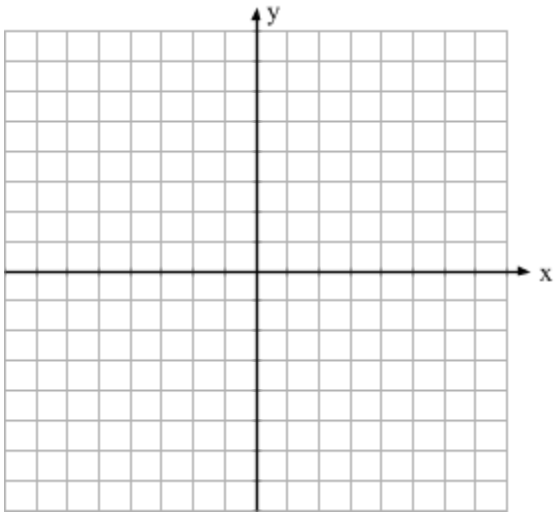
2. Graph the line x=2



Determine the slope and y-intercept of the lines below and graph the line on the given axes.

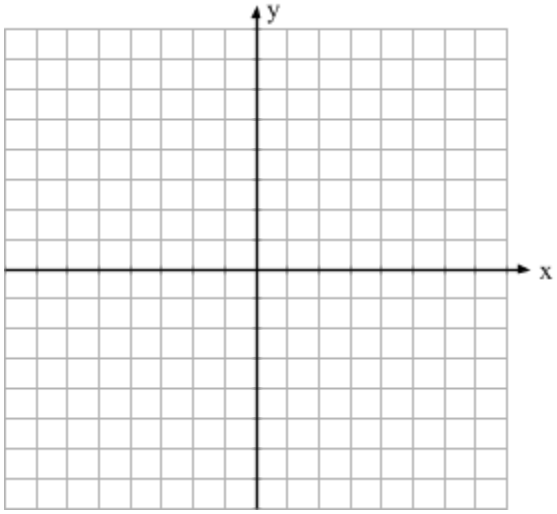
SHOW WORK.

1. $3x + 2y = 6$



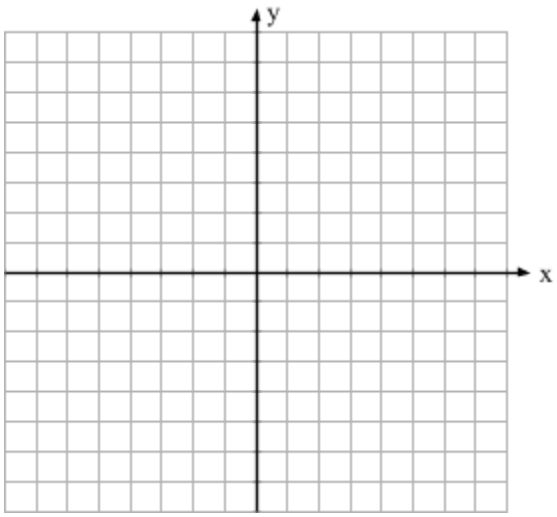
m =_____ y-int = (,)

2. $x - y = 4$



m =_____ y-int = (,)

3. $-6x + 3y = -9$



m =_____ y-int = (,)

Simplify. Answers will be in positive exponents only. * no work needed

1. $(x^2)^3$ _____ 2. $(4x^3)^2$ _____ 3. x^{-3} _____ 4. $(2x^3)(5x^4)$_____

5. $(2^3)^{-1}$ _____ 6. $(xy^2)(x^2y^3)^3$ _____ 7. $(2y^5)^3(4xy^{-2})$ _____ 8. 5^{-2} _____

8. $\frac{8x^3}{2x^{-5}}$ _____ 9. $\frac{6x^9}{12\,x^5}$ _____ 10. $\frac{(-2)^3}{(-2)^{-1}}$ _____

Add or subtract the polynomials as indicated.

1. $(\ x^2 + 6y) + (\ -7x^2 - x - 3y\ )$

2. $(8a^3b^2 - d\ ) - (2a^3b^2 + 7d)$

3. $(\ 6x^3y + 3y^2 + 7y) - (-5xy + 9y^2 - y\ )$

4. $(\ 4x^3\,y - y^2\ ) + (\ 5x^3\,y + y^2\ )$

Find the product.

1. $(2x - 3)(x - 4)$

2. $(x - 1)^2$

3. $(3x - 2)(y - 5)$

4. $(x^2 + 5)(x^2 - 3)$

5. $(y + 7)(y - 7)$

6. $(x - y)(2x + 3y - 5)$

Factor each completely. If it cannot be factored, write prime.

1) $x^2 + 7x + 10$

2) $x^2 - 11x + 18$

3) $2x^2 + 13x + 15$

4) $2x^2 - 10x + 8$

5) $x^2 + 5x - 24$

6) $x^2 - 16$

7) $3x^2 + 21x + 30$

8) $2x^2 + 13x + 15$

9) $x^2 + 25$

Solve each quadratic by factoring.

1) $x^2 - 4x - 12 = 0$

2) $x^2 - 14 = 5x$

3) $x^2 + 5x - 6 = 0$

4) $2x^2 = 13x + 7$

Simplify. All variables represent positive real numbers.

1) $\sqrt{25x^4}$

2) $\frac{\sqrt{32}}{\sqrt{2}}$

3) $\sqrt{45x^6y^4}$

4) $\sqrt{24x^8y^3}$

Perform the indicated operations. Put all answers in simplified form.

a) $\sqrt{6}\,(\sqrt{6}-3\sqrt{2}\,)$

b) $2\sqrt{3}\,(4+\sqrt{6}\,)+2\sqrt{2}$

c) $5\sqrt{2}-3\sqrt{50}$

Solve each equation.

a) $\sqrt{3x+4}=\sqrt{x+10}$

b) $4\sqrt{2x-3}=36$

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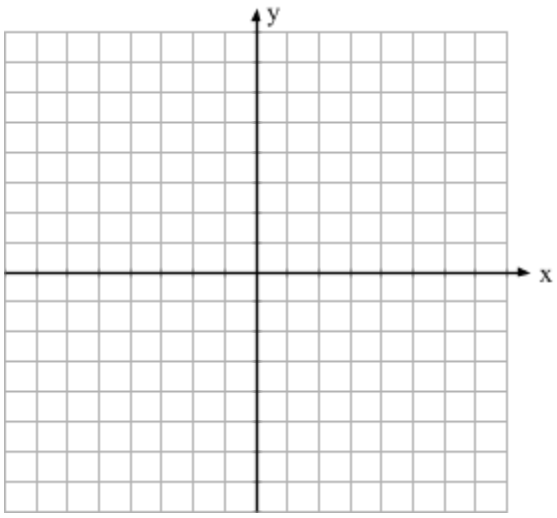
Part II

For this part of the assignment a calculator may be used.

Solve the system by graphing.

y= x – 2
2x+ y = 1



Solve the system by the substitution method.

2x +y =5

y=x -4

Solve the system by the elimination method.

1. -2x +y =-20
   2x + y = 48

2. -2x+5y =-1
   3x+2y =11

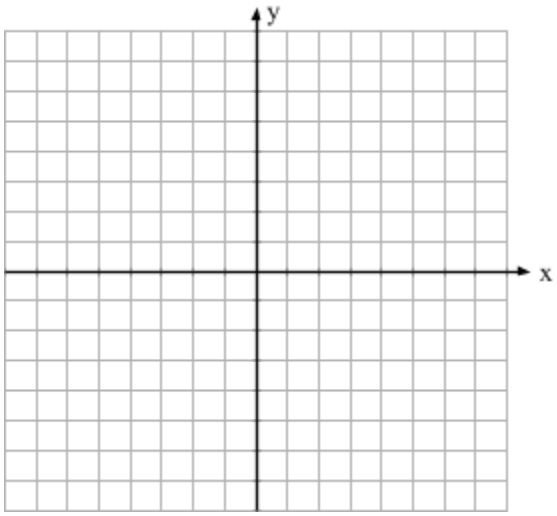
3. x – y = -3
   5x+3y = 1

4. x+3y-15=0
   2x-3y= -6

Graph the system of linear inequalities. Shade the solution.

$y < -x + 5$

$y \geq 2x - 3$



Write a(n) equation, system of equations or system of inequalities to solve each problem.

1. Matt and his brother Ryan start saving money at the same time. Matt has $290 and will add $20 a week. Ryan has $40 and will add $30 a week. After how many weeks will Matt and Ryan have the same amount of money in their savings accounts? What is that amount?

2. The sum of three consecutive even integers is 204. Write an algebraic equation and use that to find each integer.

3. David is going to DJ a party. The first time he went to the store he bought 3 CD's and 4 DVD's. The bill came to $82.00. When David got home he realized he forgot some of the artists he wanted, so he bought 2 more CD's, and 3 more DVD's. This bill came to $59.00. What was the cost of each CD? What was the cost of each DVD?

4. A caterer charges a $200 fee plus $25 per person served.
    a. Write an equation that represents the cost as a function of the number of guests.

    b. Identify the slope and y-intercept.

    c. What would the cost be for 40 people?

    d. Mrs. Watson hired this caterer for her daughter's sweet sixteen party. If she was charged $3050 , how many people were in attendance at the party?

5. Christina is making a jewelry box in the shape of a rectangular prism. The dimensions are: length of $(x + 3)$, width of $(x – 2)$ and a height of $(2x)$. Write and simplify a polynomial expression for the volume of the jewelry box. Sketch a diagram. The volume formula is $V= lwh$.

6. Rebecca is considering two different cell phone plans.

PLAN A	PLAN B
$25 per month	$30 per month
14 cents per minute	10 cents per minute

Based on this information, what is the cost of 160 minutes of calls under each plan? What length phone call cost the same under plan A and Plan B? What is that cost? The cell phone company is considering introducing a third plan. The new plan is based on the per-minute charges only. If a phone call of the same length and cost as the call for plans A and B is made, what must the per-minute charge be? Be sure to label all your answers.

7. Travis has a deal with his parents to earn money for a new car. He will be paid $1 for the first week he works, $5 for the second week, $25 for the third week, $125 for the fourth week and so on. Write an expression that represents what he would be paid in the 30^{th} week? Show work.

8. The length of the rectangle is (x + 7) and the width is (x-4). If the area of the rectangle is 102 sq cm, find the dimensions and the perimeter.

9. The measure of the base of a triangle is two thirds the height. If the area is 108 sq cm, find the base and the height.

10. A cylinder with radius 12cm and height 18 cm is melted down and recast as a cone with the same radius. Find the height of the cone. Google formulas.