

Algebra 2 Honors

Summer Work Packet, Summer, 2022 – DUE THE LAST DAY OF THE FIRST WEEK OF SCHOOL

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## Welcome to Algebra 2 Honors!

This course is a fast-paced, rigorous course in which you will study functions and their relationships in depth. This course is very difficult. I expect that you will be able to work through investigations I have created in order to discover mathematical concepts with peers. I will not provide you with formulas or “steps” for solving problems. You will often work with your table-mates to discover key concepts. Persistence and dedication are the keys to success in this course; however, knowing when to trust your abilities to work through a difficult problem and when to ask for help are also crucial. The work in this packet will prepare you to begin the Algebra 2 Honors course. Please ensure that you understand each concept thoroughly and can solve problems, including word problems, with these skills.

Keys to success in this course are:

- 1) Solid foundation in skills from Algebra 1.
- 2) Persistence, and the desire to understand rather than memorize.
- 3) Resilience, and ability to “bounce back” from times when you solve a problem incorrectly.
- 4) Curiosity and the interest to know the “why” of mathematics.

You **required summer assignments** are as follows:

- 1) Sign up for or log onto Khan Academy. Add me as a coach by selecting me from the coaches’ list or by using class code **ADP9SQV6**. The class is named *Algebra 2 Honors*. This will be a resource for you to review the material in this packet prior to completing the problems.
- 2) **Complete the work in this packet.**
- 3) Submit your answers using [this](#) Google form. <https://forms.gle/RFrMuatrHfdVTyt7>
- 4) Purchase a TI-34 Multiview or a TI-30 XS Multiview calculator. (You may email me at [eraskin@latinpcs.org](mailto:eraskin@latinpcs.org) a picture or a link prior to purchasing, if you would like to verify that you are purchasing the correct calculator.)



TI-30XS MultiView™ TI-34 MultiView™

- 5) Purchase a **3-ring binder** with extra lined paper and graph paper. You will need this in class daily.

**The work in this packet is due the last day of the week in the first week of school. It will count as a quiz grade.**

Please sign below to show that you understand the required materials and positive attitude to be successful in this course.

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

**Solve all problems. Show all of your work.** Refer to the Khan Academy videos if you have questions about any of the material. You will use these skills every day in class, so make sure that you completely understand them and can solve problems without help.

**Solving linear equations**

1)  $6b + 12.5 = 15.5 + 8b$

2) Ms. Smith had 70 stickers to give to students. She gave 3 to each student and still had 5 left. How many students were there? Write an equation to find the number of students who got stickers.

3)  $5r - 12 + 4r = 3r + 8$

4)  $4(-g + 7) = -(g - 8)$

5)  $12v - 8 = 16(4 + \frac{1}{2}v)$

**Linear equations with unknown coefficients**

6) Solve for h.

$$45 + 7h = 9h + qh$$

**Linear equations word problems**

- 7) The sum of 4 consecutive odd integers is 64. Find the third number in this sequence.

**Analyze the number of solutions to a system of equations**

- 8) How many solutions does the following equation have?

$$12z + 8 = 2(6z - 7)$$

**x-intercepts and y-intercepts**

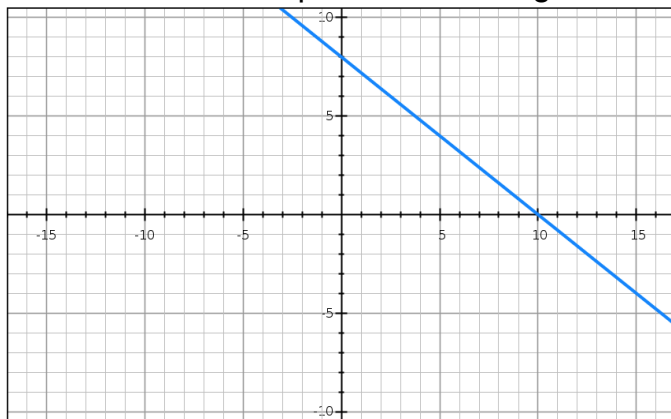
- 9) Determine the intercepts of the line that correspond to the following table of values

x	y
10	4
20	-2
50	-20

x-intercept (\_\_\_\_, \_\_\_\_)

y-intercept (\_\_\_\_, \_\_\_\_)

- 10) Determine the intercepts of the following line.



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x-intercept (\_\_\_\_, \_\_\_\_)

y-intercept (\_\_\_\_, \_\_\_\_)

11) Determine the intercepts to the line  $y = 4x + 15$ .

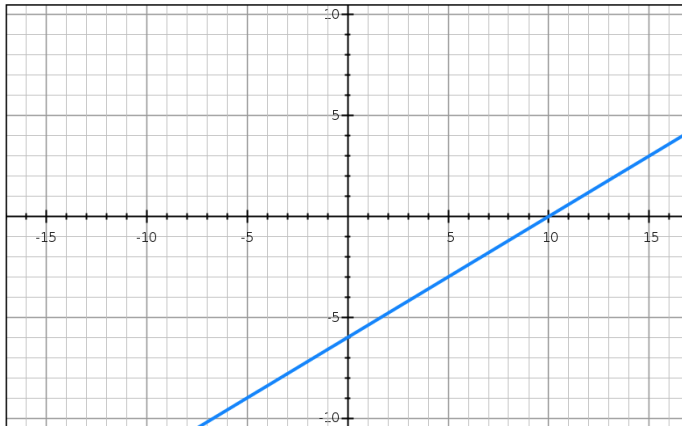
x-intercept (\_\_\_\_, \_\_\_\_)

y-intercept (\_\_\_\_, \_\_\_\_)

**Slope**

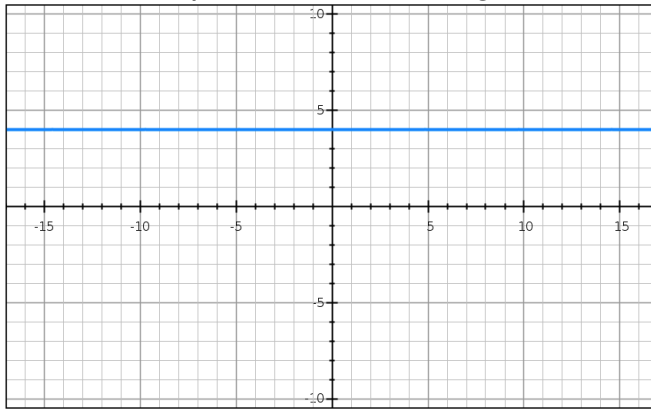
12) What is the slope of the line through the points (5, -10) and (8, 25)?

13) What is the slope of the following line?



**Horizontal and vertical lines**

14) What is the equation of the following line?

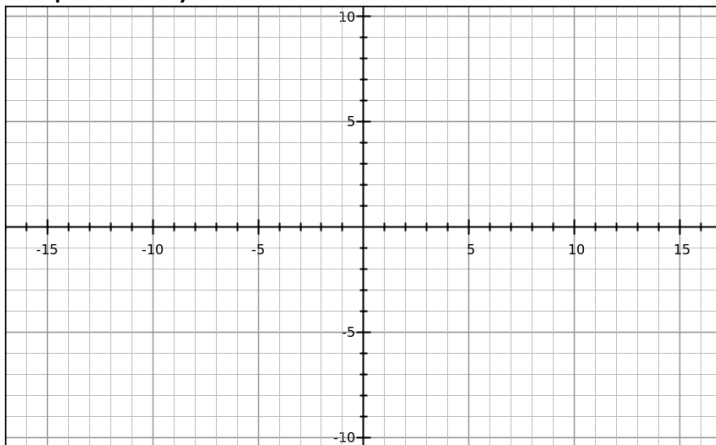


**Writing the equations of and graphing lines**

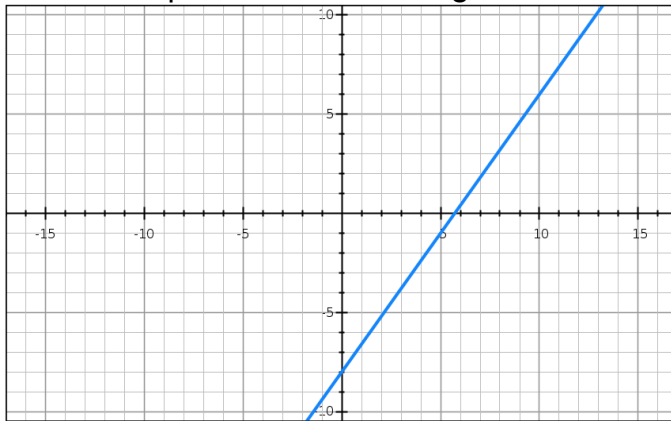
15) Write  $2y + 5 = -3(x - 10)$  in standard form.

16) What is the slope of the line  $2y + 5 = -3(x - 10)$ ?

17) Graph  $3x + 4y = 12$



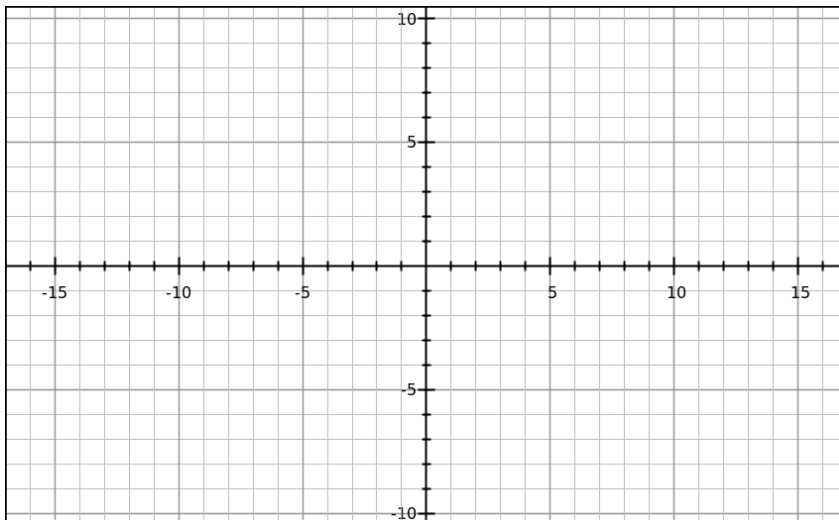
18) Write the equation of the following line.



**Solving systems of equations**

Solve the following systems of equations by graphing.

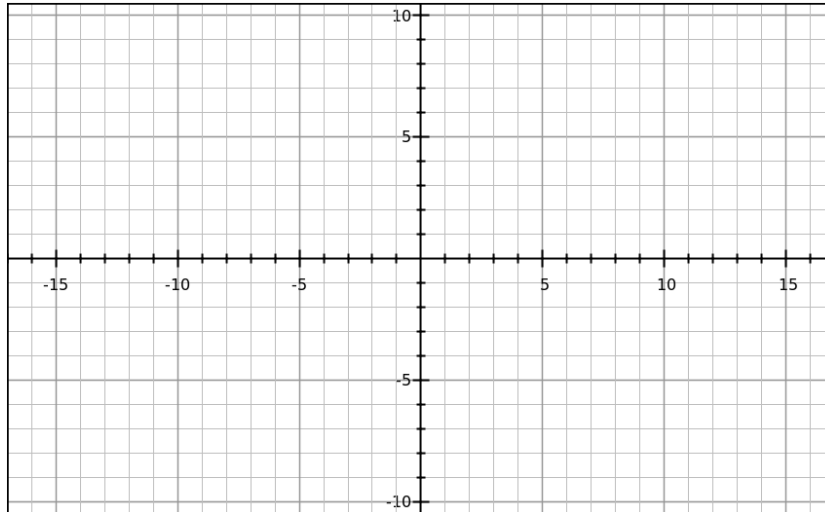
19)  $y = x + 2$   
 $y = 3x - 2$



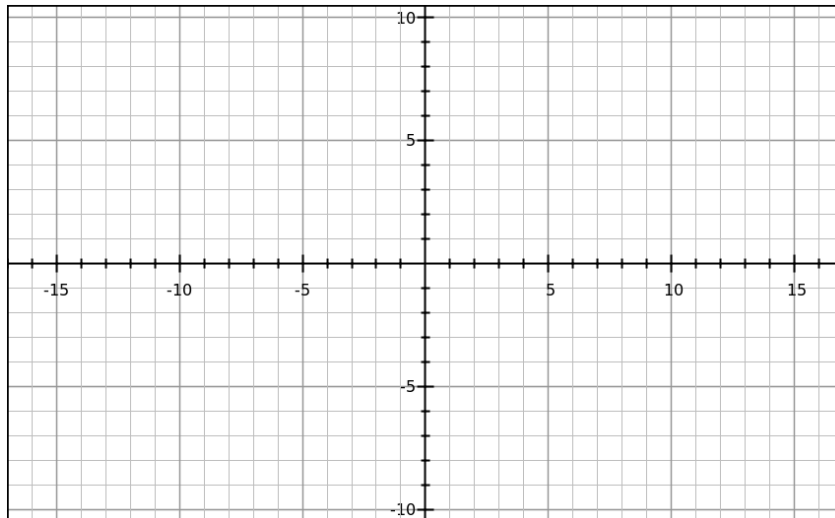
20)  $y = 2x + 3$   
 $y = 2x + 1$

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$$\begin{aligned} 21) \quad & y = -3x + 4 \\ & y + 3x = -4 \end{aligned}$$



Solve the system of equations by using either substitution or elimination.

$$\begin{aligned} 22) \quad & y = -x - 6 \\ & y = x - 4 \end{aligned}$$



$$\begin{aligned} 23) y &= 3x - 2 \\ x - y &= 4 \end{aligned}$$

$$\begin{aligned} 24) y &= 2x - 10 \\ y &= 4x - 8 \end{aligned}$$

$$\begin{aligned} 25) 2y &= 2x + 12 \\ y &= -2x - 3 \end{aligned}$$

$$\begin{aligned} 26) 4x + 3y &= -5 \\ -2x + 2y &= 6 \end{aligned}$$

$$\begin{aligned} 27) 8x + 3y &= 13 \\ 3x + 2y &= 11 \end{aligned}$$

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$$\begin{array}{l} 28) 5x + 4y = -7 \\ \quad -5x - 2y = 1 \end{array}$$