



Math Virtual Learning

# Algebra 1 S1

April 28, 2020



Algebra 1 S1  
Lesson: April 28, 2020

**Objective/Learning Target:**

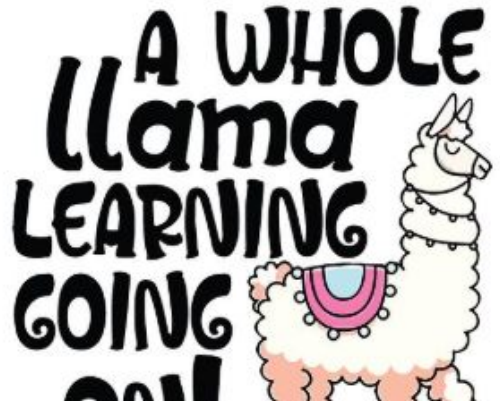
Graph perpendicular lines and demonstrate an understanding that a system of equations with perpendicular lines has one solution.

# Brainstarter-

Write an equation of the line that is parallel to the given line and passes through the given point.

1.  $y + x = 6$ , Point:  $(2, 3)$

2.  $y = 2x - 2$ , Point:  $(1, -2)$



## Solution:

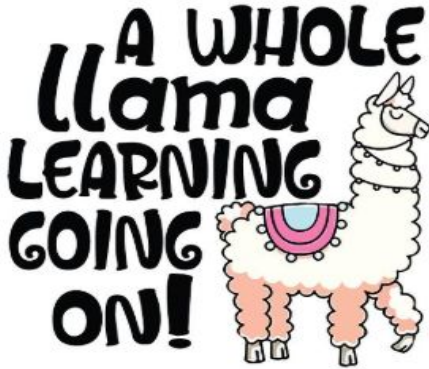
1.  $y + x = 6$  (2,3)

$$y = -x + 6$$

$$3 = -2 + b$$

$$5 = b$$

$$y = -x + 5$$



2.  $y = 2x - 2$  (1, -2)

$$y = 2x - 2$$

$$-2 = 2 + b$$

$$-4 = b$$

$$y = 2x - 4$$

Let's Get Started  
[Watch Video:](#)



"Remember  
Take Notes"

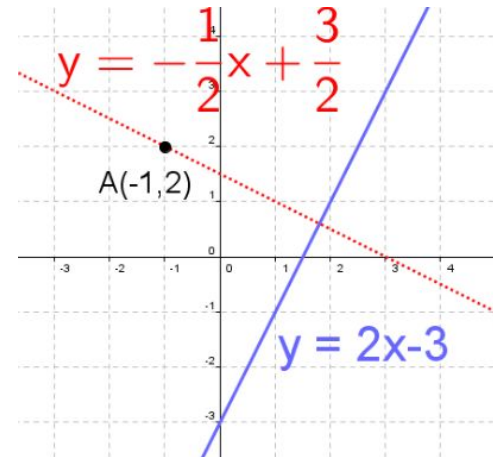
# Things to remember about Perpendicular lines.

Perpendicular Lines have slopes that are opposite reciprocals

Perpendicular lines form a ninety degree angle and have one solution

$$y = 2x - 3$$

$$y = \underline{-1}x + 1.5$$



Find the equation of a line passing through the given point and perpendicular to the given equation. Write your answer in slope-intercept form through:  $(-1, 1)$ , perp. to  $y = 3x - 4$



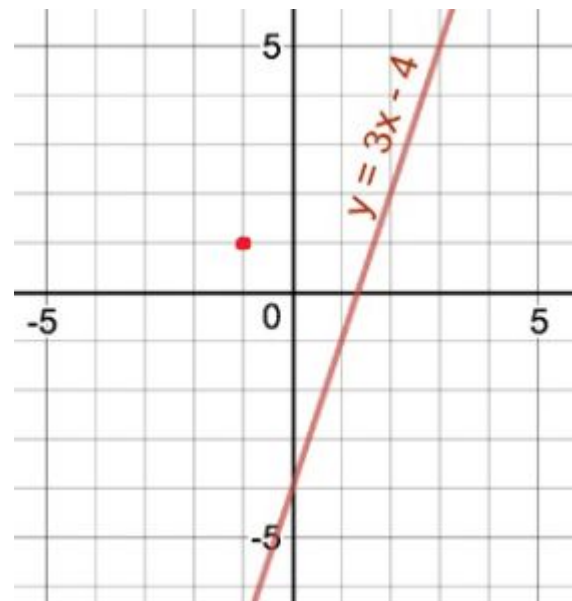
Make sure the equation is in y intercept form.

$$y = 3x - 4$$

$(-1, 1)$



Graph line and plot point.





Your perpendicular line's equation has the opposite reciprocal slope

$$y = -\frac{1}{3}x + b$$



To figure out the y intercept, substitute your original point in this equation (-1,1)

$$1 = -1\left(-\frac{1}{3}\right) + b$$

$$1 = \frac{1}{3} + b$$

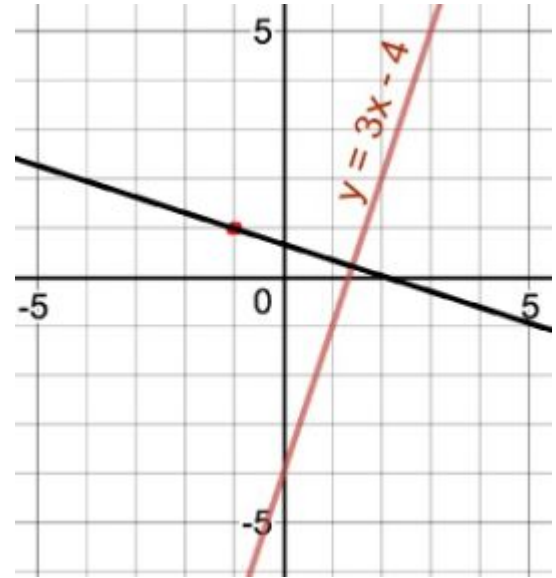
$$-\frac{1}{3} \quad -\frac{1}{3}$$

$$\frac{2}{3} = b$$

Graph your line.



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



**Now it's your turn!**

Find the equation of a line passing through the given point and perpendicular to the given line.



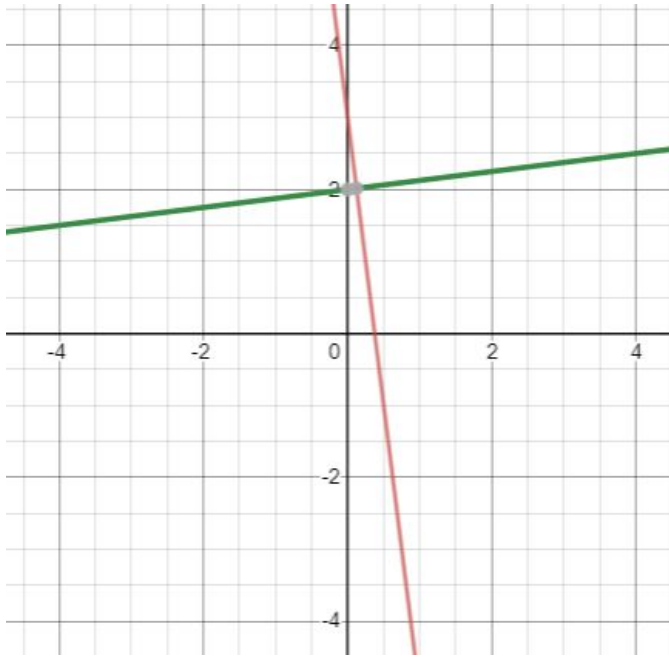
1). Through (1, -5), perpendicular to  $y = \frac{1}{8}x + 2$

2). Through (3, 4), perpendicular to  $y = -2x - 4$

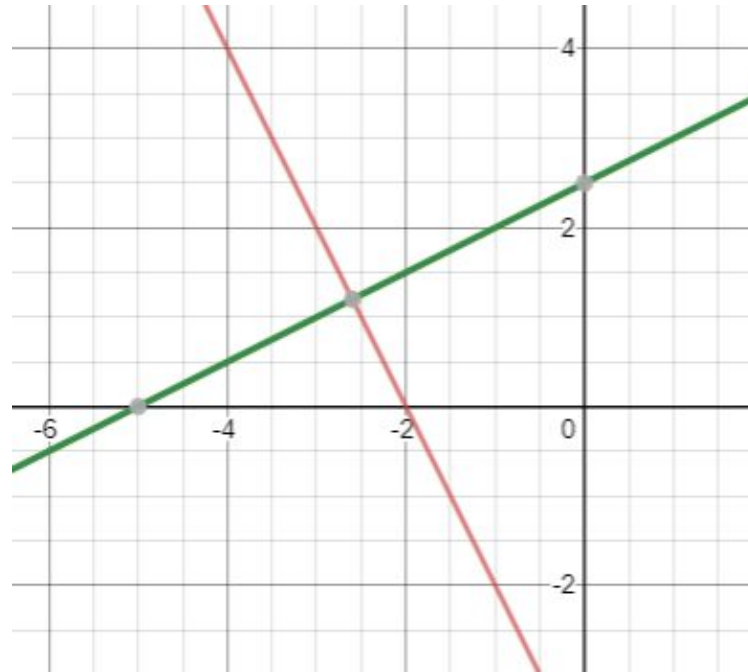
# Answer Key:

Once you have completed the problems, check your answers here.

1).  $y = -8x + 3$



2).  $y = \frac{1}{2}x + \frac{5}{2}$



# Additional Practice:

Click on the links below to get additional practice and to check your understanding!

[Finding the Equation of Perpendicular lines](#)

