



# Warm up



1. What are the three things you need to determine the equation of a line?
2. Determine the equation of a vertical line passing through the point  $(-3, 5)$ .
3. Determine the equation of a line passing through the points  $(5, -2)$  and  $(2, 8)$ .

**State answers in general form.**

1. What are the three things you need to determine the equation of a line?



*SLOPE*  
*POINT*  
*(X, Y)*



2. Determine the equation of a vertical line passing through the point  $(-3, 5)$ .

*SLOPE*  $\frac{1}{0}$   
*POINT*  $(-3, 5)$   
*(x,y)*  $(x,y)$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\frac{1}{0} \frac{y-5}{x+3}$$

$$1(x+3) = 0$$

$$x+3 = 0$$





*SLOPE*  $-\frac{10}{3}$   
*POINT* (5, -2) (2, 8)  
*(X, Y)* (x, y)

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{8 - 2}{2 - 5}$$

$$m = \frac{10}{-3}$$

$$m = \frac{-10}{3}$$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\frac{-10}{3} = \frac{y + 2}{x - 5}$$

$$-10(x - 5) = 3(y + 2)$$

$$-10x + 50 = 3y + 6$$

$$-10x - 3y + 44 = 0$$

$$10x + 3y - 44 = 0$$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$\frac{-10}{3} = \frac{y - 8}{x - 2}$$

$$-10(x - 2) = 3(y - 8)$$

$$-10x + 20 = 3y - 24$$

$$-10x - 3y + 44 = 0$$

$$10x + 3y - 44 = 0$$

**Find the equation of a line passing through (3,4) & (5, -1).**

Slope:  $-\frac{5}{2}$   
 Point:  $(3, 4)$   
 $(x_1, y_1)$   
 $(x_2, y_2)$

Find Slope:  
 $(x_1, y_1) (x_2, y_2)$   
 $(3, 4) (5, -1)$   
 $m = \frac{y_2 - y_1}{x_2 - x_1}$   
 $m = \frac{-1 - 4}{5 - 3}$   
 $m = -\frac{5}{2}$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$-\frac{5}{2} = \frac{y - 4}{x - 3}$$

$$-5(x - 3) = 2(y - 4)$$

$$-5x + 15 = 2y - 8$$

$$-5x - 2y + 15 + 8 = 0$$

$$-5x - 2y + 23 = 0$$

$$5x + 2y - 23 = 0$$

Find the equation of a horizontal line passing through  $(3, 7)$ .

Slope:  $\frac{0}{1}$   
Point:  $(x_1, y_1)$   
 $(3, 7)$   
 $(x_2, y_2)$   
 $(x_1, y_1)$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$
$$\frac{0}{1} = \frac{y - 7}{x - 3}$$
$$y - 7 = 0$$

## Attachments

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