

## CHAPTER 4 - SLOPE

Find slope given  $(2, 3)$  and  $(6, 9)$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{9 - 3}{6 - 2} = \frac{6}{4} = \frac{3}{2}$$

Given  $y = 3x + 1$   
 $m = 3$   
 ↑  
 slope

Parallel line:  $y = 3x + 2$  ← Doesn't matter

Perpendicular line:  $y = -\frac{1}{3}x + 5$

Given  $y = -\frac{3}{4}x - 3$

Parallel line:  $y = -\frac{3}{4}x + ?$

Perp. line:  $y = \frac{4}{3}x + ?$

Find the x and y-intercepts of

$$3x - 5y = -15$$

x-int  $y = 0$

$$3x - 5(0) = -15$$

$$3x = -15$$

$$x = -5$$

$$(-5, 0)$$

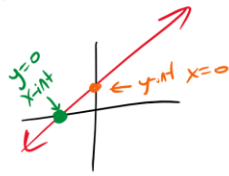
y-int  $x = 0$

$$3(0) - 5y = -15$$

$$-5y = \frac{-15}{-5}$$

$$y = 3$$

$$(0, 3)$$



eg. x and y-int of

$$2x - 6y + 18 = 0$$

x-int  $y = 0$

$$2x - 6(0) + 18 = 0$$

$$2x + 18 = 0$$

$$2x = -18$$

$$x = -9$$

$$(-9, 0)$$

y-int  $x = 0$

$$2(0) - 6y + 18 = 0$$

$$-6y = -18$$

$$y = 3$$

$$(0, 3)$$

## CHAPTER 5 → LINEAR EQUATIONS

Write the equation of the line that goes through  $(-3, 2)$  and  $(-2, 5)$  in all three forms.

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

$$= \frac{5 - 2}{-2 - (-3)} = \frac{3}{1}$$

P.S.  
 $y - 2 = 3(x + 3)$   
 slope  
 x - (-3)

S-I  $y = 3(x + 3) + 2$

$$y = 3x + 11$$

General  $0 = 3x - y + 11$

3 features

- 1) equals zero
- 2) x is positive
- 3) No fractions

point-slope  $y - y_1 = m(x - x_1)$   
 general  $Ax + By + C = 0$   
 slope-int  $y = mx + b$