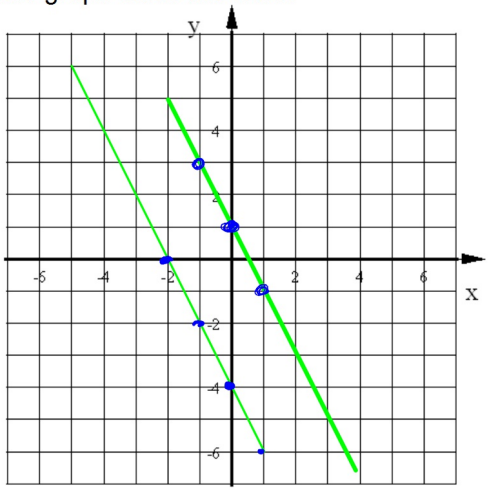
On the same set of axes graph these two lines:

y = -2x + 1

6x + 3y = -12

$\frac{3y}{3} = \frac{-12 - 6x}{3}$

$y = -4 - 2x$



What is the relationship between the two lines you just graphed?

Parallel ⟶ Symbol: ||

y = -2x + 1

Write this equation in Slope-Intercept Form

6x + 3y = -12

$y = -4 - 2x$

What do you notice about the two equations?

How do you know by just looking at the equations of two lines if they are Parallel?

- Same Slope
- Different y-intercept

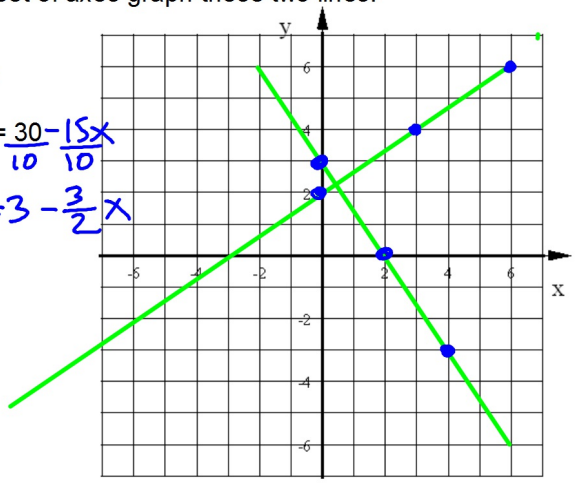
On the same set of axes graph these two lines:

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

$15x + 10y = 30$

$\frac{15x}{10} + \frac{10y}{10} = \frac{30}{10} - \frac{15x}{10}$

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



What is the relationship between the two lines you just graphed?

Perpendicular

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

Write this equation in Slope-Intercept Form

15x + 10y = 30

What do you notice about the two equations?

How do you know by just looking at the equations of two lines if they are Perpendicular?

- Slopes are opposite reciprocals
- y-intercept doesn't matter!

Sec 6-5: Parallel and Perpendicular Lines

Two lines are Parallel if they:
- Have the same slope
- Different y-intercepts

Two lines are Perpendicular if they:
- Have opposite reciprocal slopes
- y-intercepts don't matter