

## What's Going On?

**Checking In**

Test!

**Minds on**

What's My Equation?

**Action!**

Two Points!

**Consolidation**

Step by step.

**Learning Goal - I will be able to determine the equation of a line given two points on the line.**

 Checking In

Test!

Next Friday

**Checking In**

# Recapping Yesterday

**Let's take up a few  
homework questions  
from last night.**

### Checking In

Page 335 #1f

Find the equation of a line with the given slope and passing through the given point, P.

$$y = mx + b$$

slope

$$m = 2, \quad P\left(\frac{1}{2}, \frac{3}{4}\right)$$

$$\frac{3}{4} = (2)\left(\frac{1}{2}\right) + b$$

$$\frac{3}{4} = 1 + b$$

$$\frac{3}{4} - \frac{4}{4} = b$$

$$\frac{3-4}{4} = b$$

$$-\frac{1}{4} = b$$

$$b = -0.25$$

$$y = 2x - 0.25$$

## Checking In

### Page 336 #2d

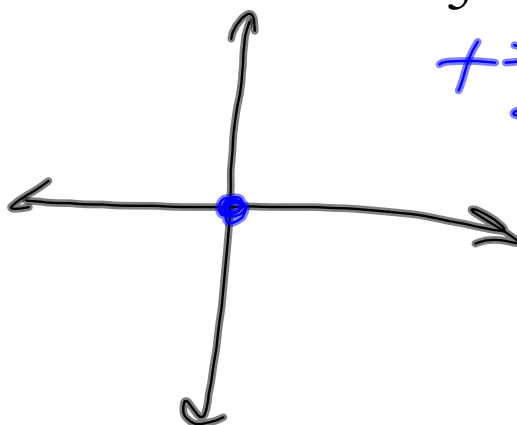
Find the equation of a line perpendicular to  $y = -\frac{2}{5}x + 4$  passing through the origin.

$$y = mx + b$$

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

$$b = 0$$

$$y = \frac{5}{2}x$$



## Checking In

### Page 336 #5

Find an equation for the line parallel to  $2x - 3y + 6 = 0$ , with the same y-intercept as  $y = 7x - 1$ .

Our line has the same slope as  $2x - 3y + 6 = 0$

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

Our line has the same y-intercept as  $y = 7x - 1$

$$b = -1$$

$\therefore$  our equation is  $y = \frac{2}{3}x - 1$

same slope

$$\begin{array}{r} 2x - 3y + 6 = 0 \\ -2x \quad \quad \quad +6 \quad \quad \quad -2x-6 \end{array}$$

$$\frac{-3y}{-3} = \frac{-2x-6}{-3}$$

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

## Checking In

## Page 336 #6

Find an equation for the line perpendicular to  $4x - 5y = 20$  and sharing the same y-intercept.

$$\cancel{4x} - \boxed{5y} = 20$$

$\phantom{\cancel{4x}} -4x \qquad \phantom{\cancel{4x}} -4x$

$$\cancel{-5y} = \frac{-4x}{-5} + \frac{20}{-5}$$

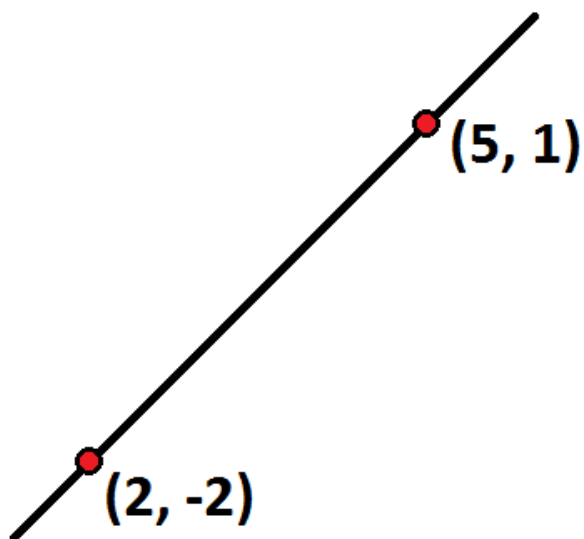
$$y = \boxed{\frac{4}{5}}x - 4$$

$$m = -\frac{5}{4} \quad b = -4$$

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

**Minds on**

What's my equation?





**Action!**

## Two Points!

To find the equation of a line given two points  $[(x_1, y_1)$  and  $(x_2, y_2)]$ :

1. Use the two points to determine the slope of the line:

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

2. Use the slope, and one of the points to find the y-Intercept

**(Yesterday's lesson!)**

**Action!**

## Leading Questions

Find the equation of the line through the points  $(-1, -3)$  and  $(2, 3)$

2. What do I have?

*two points*

**Action!**

## Leading Questions

Find the equation of the line through the points  $(-1, -3)$  and  $(2, 3)$

1. What do I need to determine the equation of a line?

① slope

② y-intercept

**Action!**

## Leading Questions

Find the equation of the line through the points  $(-1, -3)$  and  $(2, 3)$

3. What do I still need?

① slope

② y-intercept

## Action!

# Leading Questions

Find the equation of the line through the points  $(-1, -3)$  and  $(2, 3)$

4. How can I find it? ~~them?~~

$$(x, y) \text{ } m = \frac{y_2 - y_1}{x_2 - x_1}$$

①	$(x_1, y_1)$ $(-1, -3)$
②	$(x_2, y_2)$ $(2, 3)$

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

$$m = \frac{6}{3}$$

$$m = 2$$

$$y = mx + b$$
$$m = 2$$

$$P_1 (-1, -3)$$

$x$        $y$

$$(-3) = (2)(-1) + b$$
$$-3 = -2 + b$$

$+2$        $+2$

$$-1 = b$$

$$b = -1$$

$$P_2 (2, 3)$$

$x$        $y$

$$(3) = (2)(2) + b$$
$$3 = 4 + b$$

$-4$        $+4$

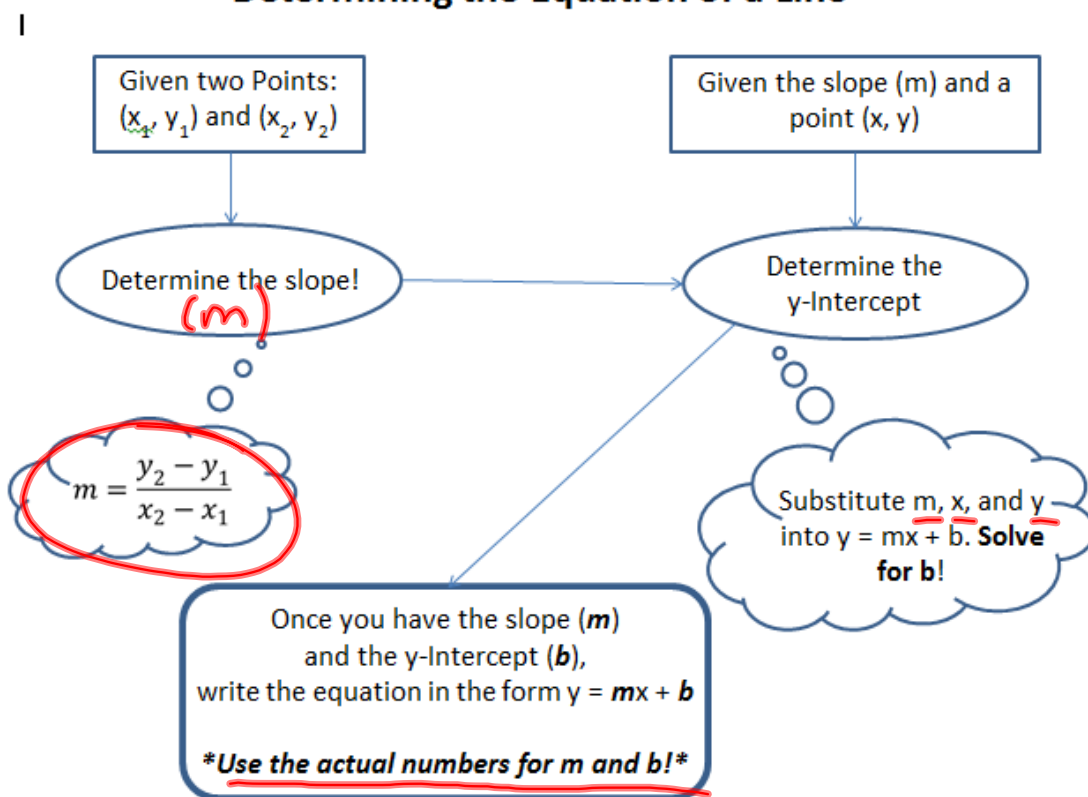
$$-1 = b$$

$$b = -1$$

$$y = 2x - 1$$

## Consolidation

### Determining the Equation of a Line



## Consolidation

# Practice it!

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#1, 2, 3, 5, 8