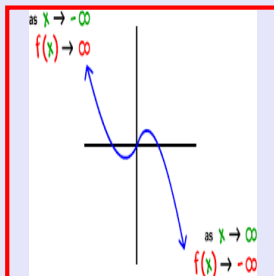


Math 245
Spring 2022
Lecture 5



Class QZ 2

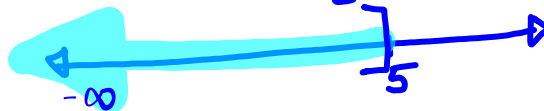
Solve and graph $2x + 10 \geq 5x - 5$

$$2x - 5x \geq -5 - 10$$

$$-3x \geq -15$$

$$\frac{-3}{-3}x \leq \frac{-15}{-3}$$

$$x \leq 5$$



Set-Builder notation } Interval notation
 $\{x \mid x \leq 5\}$ } $(-\infty, 5]$

Such that

Consider $A(0, -3)$ and $B(8, 3)$

1) Draw \overline{AB} $m\left(\frac{0+8}{2}, \frac{-3+3}{2}\right)$

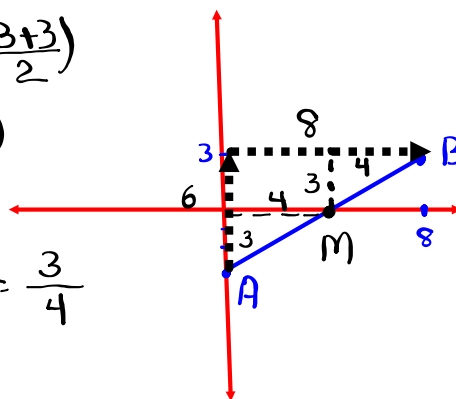
$$m(4, 0)$$

2) Find midpoint M
of \overline{AB}

$$m = \frac{6}{8} = \frac{3}{4}$$

3) Find slope of \overline{AB}

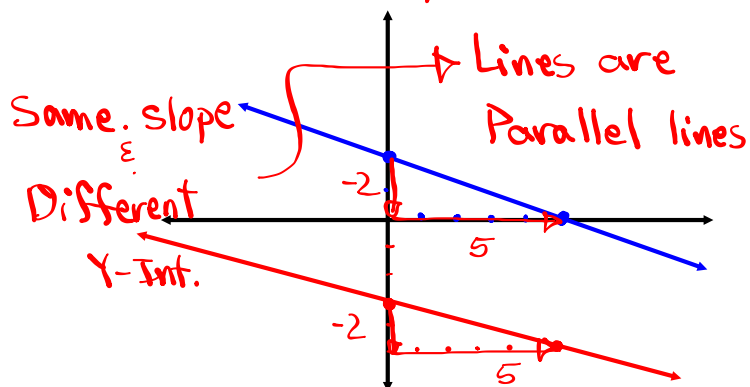
$$4) \text{ Find } d(A, B) = \sqrt{(0-8)^2 + (-3-3)^2} = \sqrt{(-8)^2 + (-6)^2} = \sqrt{100} = \boxed{10}$$



Graph $2x + 5y = 10$ and $y = -\frac{2}{5}x - 3$ $m = -\frac{2}{5}$
in the same coordinate system. Slope-Int. Y-Int $(0, -3)$

Intercept Method

x	y
0	2
5	0

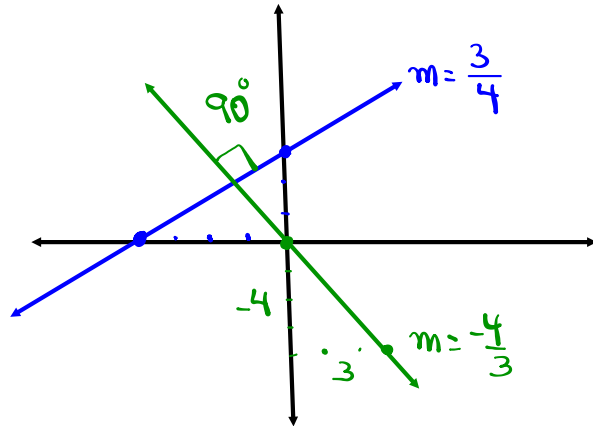


Graph $3x - 4y = -12$ and $y = \frac{-4}{3}x$ $m = \frac{-4}{3}$
 in the Same coordinate system. Y-Int (0,0)

$$\begin{array}{c|c} x & y \\ \hline 0 & 3 \\ \hline -4 & 0 \end{array}$$

$$\frac{3}{4} \cdot \frac{-4}{3} = -1$$

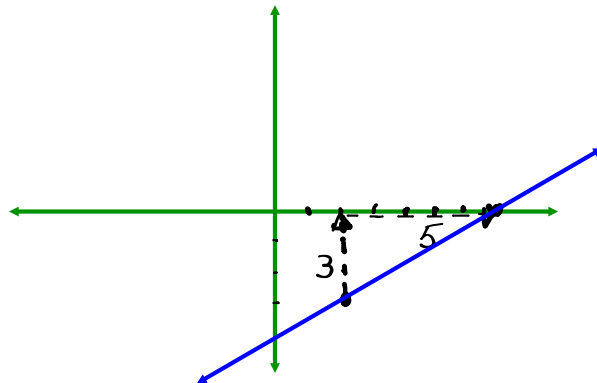
→ Lines are \perp
to each other.



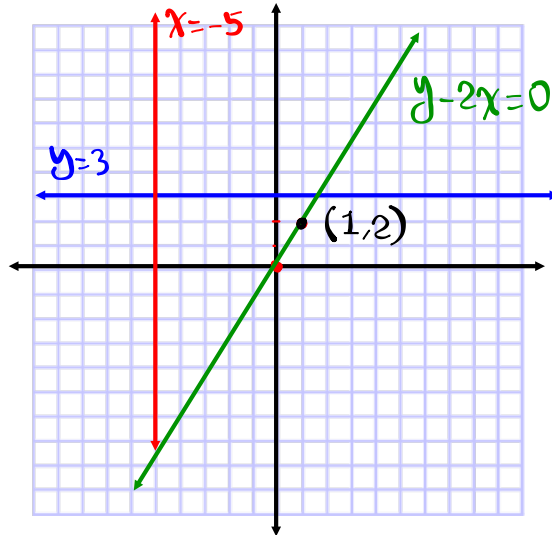
Graph $y + 3 = \frac{3}{5}(x - 2)$ using point-slope formula.
 $y - y_1 = m(x - x_1)$

Point (2, -3)

$$m = \frac{3}{5}$$



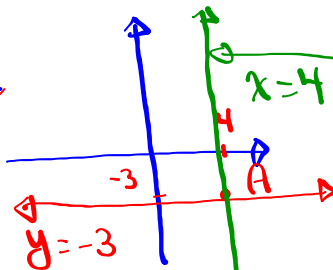
Graph $y=3$, $x=-5$, and $y-2x=0$ in the
 H.L. V.L. Same coordinate system.



$y=2x$ slope $m=2$
 Y-Int $(0,0)$
 $2 = \frac{2}{1}$ Rise
 1 Run

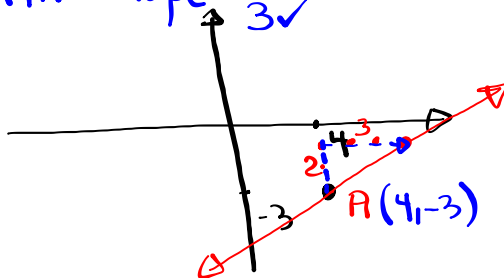
Consider the point $A(4,-3)$, draw a line that contains A with

1) Zero slope
 H.L.

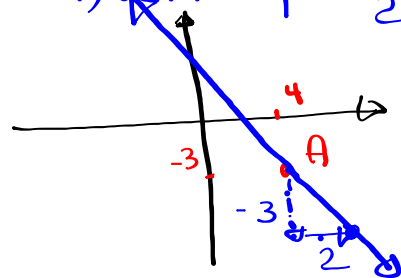


2) No slope
 V.L.

3) with slope $\frac{2}{3}$



4) with slope $-\frac{3}{2}$



Find slope of the line \overleftrightarrow{AB}

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

1) $A(2, 4), B(-2, 5)$ $m = \frac{4 - 5}{2 - (-2)} = \frac{-1}{2 + 2} = \boxed{\frac{-1}{4}}$

2) $A(-3, 2), B(5, 2)$ $m = \frac{2 - 2}{-3 - 5} = \frac{0}{-8} = \boxed{0}$

3) $A(-5, -3), B(-5, 3)$ $m = \frac{-3 - 3}{-5 - (-5)} = \frac{-6}{-5 + 5} = \frac{-6}{0}$
 \downarrow $\boxed{\text{No slope}}$ $\boxed{\text{Undefined slope}}$

Solve and graph

$$-6 < 3x - 3 \leq 18$$

Add 3

$$-6 + 3 < 3x \leq 18 + 3$$

$$-3 < 3x \leq 21$$

Divide by 3

$$\text{S.B.N. } \{x \mid -1 < x \leq 7\}$$

$$\text{I.N. } (-1, 7]$$

Hint: Isolate x in the middle.

$$-1 < x \leq 7$$



SG 1 ✓

Canvas: Due date