

Math 10D

Unit 0 – Grade 9 Skills Review

Lesson 2: Solving Equations and Graphing Lines

Name: _____

Date: _____

Equations – Solving For X

Solve the following equations:

$\xrightarrow{\hspace{1cm}}$
 BEDMAS
 $\xleftarrow{\hspace{1cm}}$
 SAMDEB

a.) $5x - 4 = 11$

$\Rightarrow 5x = 11 + 4$

$\Rightarrow \frac{5x}{5} = \frac{15}{5}$

$\Rightarrow \boxed{x = 3}$

b.) $3x - 1 = x + 13$

$\Rightarrow 3x - x = 13 + 1$

$\Rightarrow \frac{2x}{2} = \frac{14}{2}$

$\Rightarrow \boxed{x = 7}$

c.) $\frac{(x+4)}{8} = 7$

$\Rightarrow x + 4 = (7)(8)$

$\Rightarrow x + 4 = 56$

$\Rightarrow x = 56 - 4$

$\Rightarrow \boxed{x = 52}$

d.) $\frac{x}{5} + 3 = -2$

$\Rightarrow \frac{x}{5} = -2 - 3$

$\Rightarrow \frac{x}{5} = -5$

$\Rightarrow x = (-5)(5)$

$\Rightarrow \boxed{x = -25}$

How to Clear Equations with Fractions

$$\frac{3x}{3 \times 4} + \frac{5x}{2 \times 6} = \frac{6x}{2 \times 6} - \frac{4x}{3 \times 4}$$

LCD(4, 2, 3) = 12

$$\Rightarrow \frac{3x}{12} + \frac{30}{12} = \frac{6x}{12} - \frac{4x}{12}$$

$\Rightarrow 3x + 30 = 6x - 4x$

$\Rightarrow 30 = 6x - 4x - 3x$

$\Rightarrow \frac{30}{-1} = \frac{-x}{-1}$

$\Rightarrow \boxed{-30 = x}$

Solve for x:

$$\frac{2 \times 2x}{2 \times 7} - \frac{3x^7}{7 \times 2} = \frac{x}{14} - \frac{36 \times 14}{1 \times 14}$$

$$LCD(2, 7, 14, 1) = 14$$

$$\frac{4x}{14} - \frac{21x}{14} = \frac{x}{14} - \frac{504}{14}$$

$$4x - 21x = x - 504$$

$$4x - 21x - x = -504$$

$$\frac{-18x}{-18} = \frac{-504}{-18}$$

$$\Rightarrow x = 28$$

Graphing Review

Graphing Using Intercepts

1.) Identify the x and the y-intercepts:

Line A

$$\Rightarrow \text{X-intercept: } (7.5, 0)$$

$$\Rightarrow \text{Y-intercept: } (0, 2)$$

Line B

$$\Rightarrow \text{X-intercept: } (-3, 0)$$

$$\Rightarrow \text{Y-intercept: } (0, 5)$$

Line C

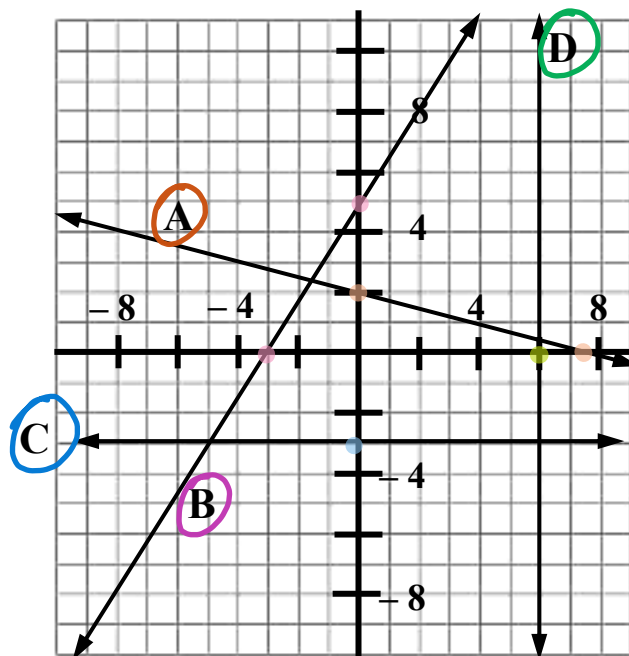
$$\Rightarrow \text{X-intercept: NONE}$$

$$\Rightarrow \text{Y-intercept: } (0, -3)$$

Line D

$$\Rightarrow \text{X-intercept: } (6, 0)$$

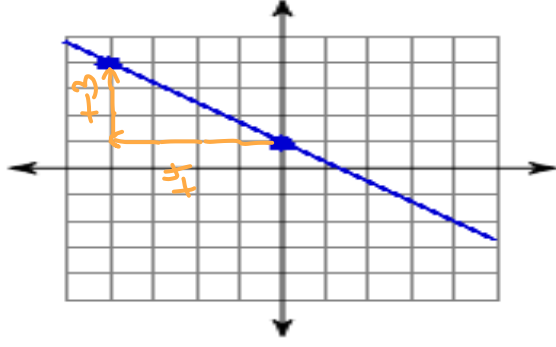
$$\Rightarrow \text{Y-intercept: NONE}$$



$$\text{SLOPE } (m) = \frac{\text{Rise}}{\text{Run}} = \frac{\Delta y}{\Delta x}$$

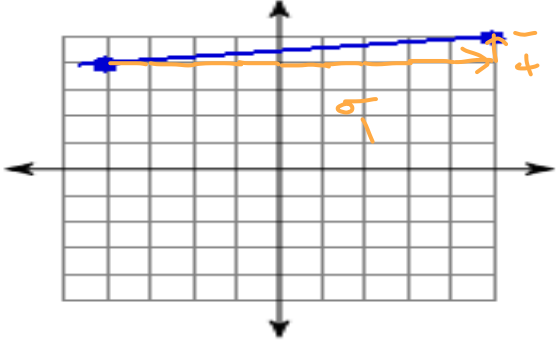
3.) Find the **slope** of the following lines

1)



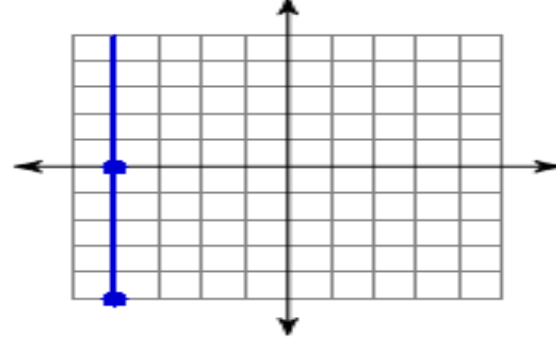
$$m = \frac{4}{3}$$

2)



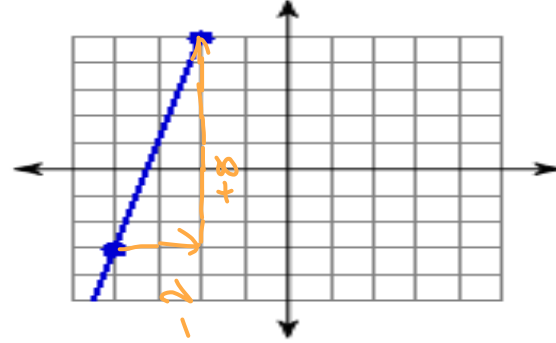
$$m = -\frac{1}{9}$$

3)



$$m = 0$$

4)



$$m = -\frac{2}{8} = -\frac{1}{4}$$

INTERCEPT

SLOPE-POINT FORM EQUATIONS: $y = mx + b$

(x,y)-points on line

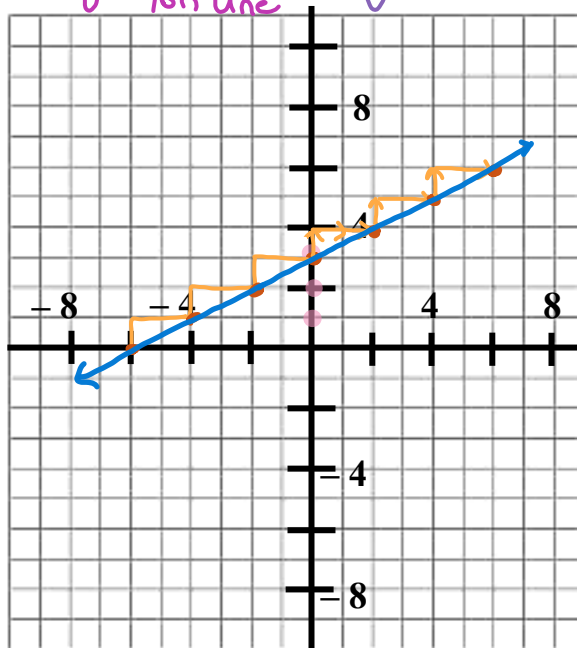
y-intercept

4.) Graph $y = \frac{1}{2}x + 3$ on the Cartesian Plane:

$$y = \frac{+1}{+2}x + 3$$

SLOPE

$$m = \frac{\text{Rise}}{\text{(MOVE) Run}}$$

y-int.
b
(BEGIN)

5.) Graph the following lines on the Cartesian Plane:

a.) $y = \frac{3}{2}x - 4$

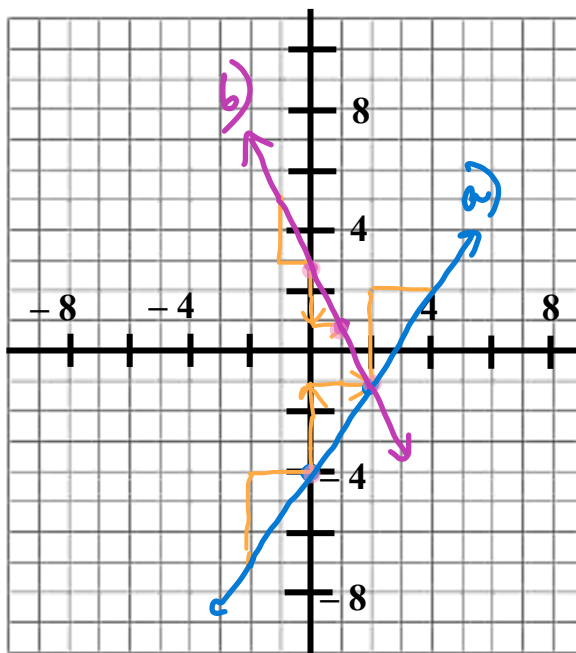
$$m = \frac{3}{2}$$

$$y_{\text{int}} = -4$$

b.) $y = -\frac{2}{1}x + 3$

$$m = -\frac{2}{1}$$

$$y_{\text{int}} = 3$$



6.) Graph the following equations on the Cartesian Plane:

a.) $y = -\frac{4}{3}x - \frac{1}{2}$

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

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

$$b = -0.5$$

b.) $4x + 7y - 14 = 0$

$$\frac{7y}{7} = \frac{-4x + 14}{7}$$

$$\Rightarrow y = -\frac{4}{7}x + 2$$

$$m = -\frac{4}{7} \quad ; \quad y = 2$$

