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Slope:

a number
that states direction
⊕, ⊖, 0, undefined

Slope Formula:

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

Ex. What is the **slope** of a line that passes through $(-2, 5)$ and $(-6, 2)$

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

$$= \frac{2 - 5}{-6 - (-2)}$$

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

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

x_1 y_1
 x_2 y_2

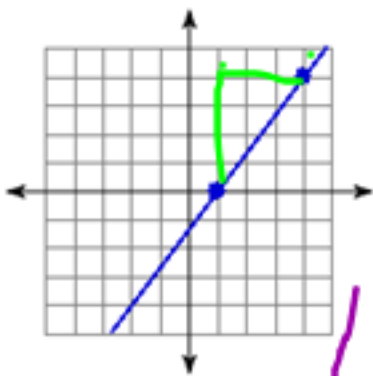
Equation of a Line: $y = mx + b$: Slope-intercept form

m : slope b : y-intercept

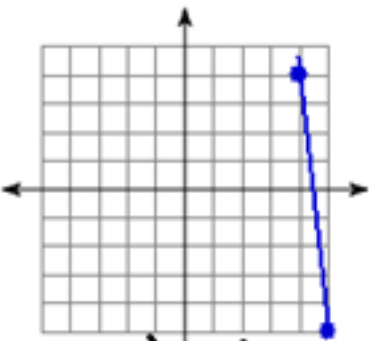
Standard form for the Equation of a Line is $Ax + By = C$

Ex. Find the slope of the following lines

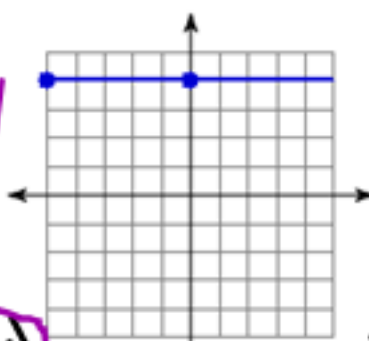
1)



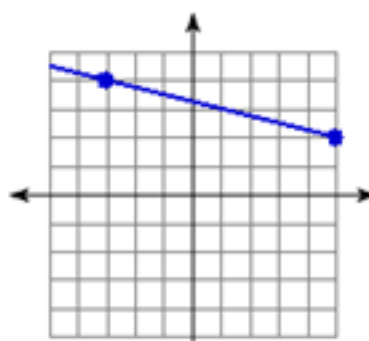
2)



3)



4)



x_1, y_1
 $(1, 0)$
 x_2, y_2
 $(4, 4)$

x_1, y_1
 $(-3, 4)$
 x_2, y_2
 $(5, 2)$

$$= \frac{y_2 - y_1}{x_2 - x_1} = \frac{4 - 0}{4 - 1} = \frac{4}{3} = m$$

$$= \frac{y_2 - y_1}{x_2 - x_1} = \frac{-5 - 4}{5 - 4} = \frac{-9}{1} = -9 = m$$

$$= \frac{y_2 - y_1}{x_2 - x_1} = \frac{4 - 4}{0 - (-5)} = \frac{0}{5} = 0 = m$$

$$= \frac{y_2 - y_1}{x_2 - x_1} = \frac{2 - 4}{5 - (-3)} = \frac{-2}{8} = -\frac{1}{4} = m$$

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Steps to Graphing a Linear Equation:

1. Put the equation in slope-intercept form
2. Plot the **y-intercept** on the graph
3. Plot the **slope** and **draw the line**

Course: Grade 10 Mathematics

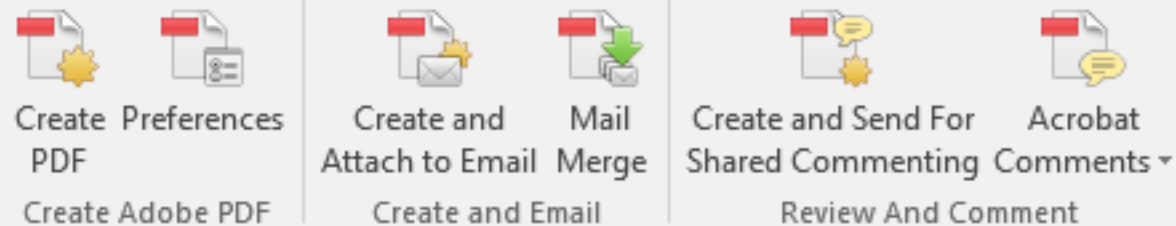
A ∞ Ω
MATH@TD

Graph the following lines given their equation:

$$y = 2x - 3$$

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

$$2x - 3y = 6$$



$$y = mx + b$$

Graph the following lines given their equation:

①

$$y = 2x - 3$$

$$m = 2$$

$$b = -3$$

②

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

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

$$b = 4$$

③

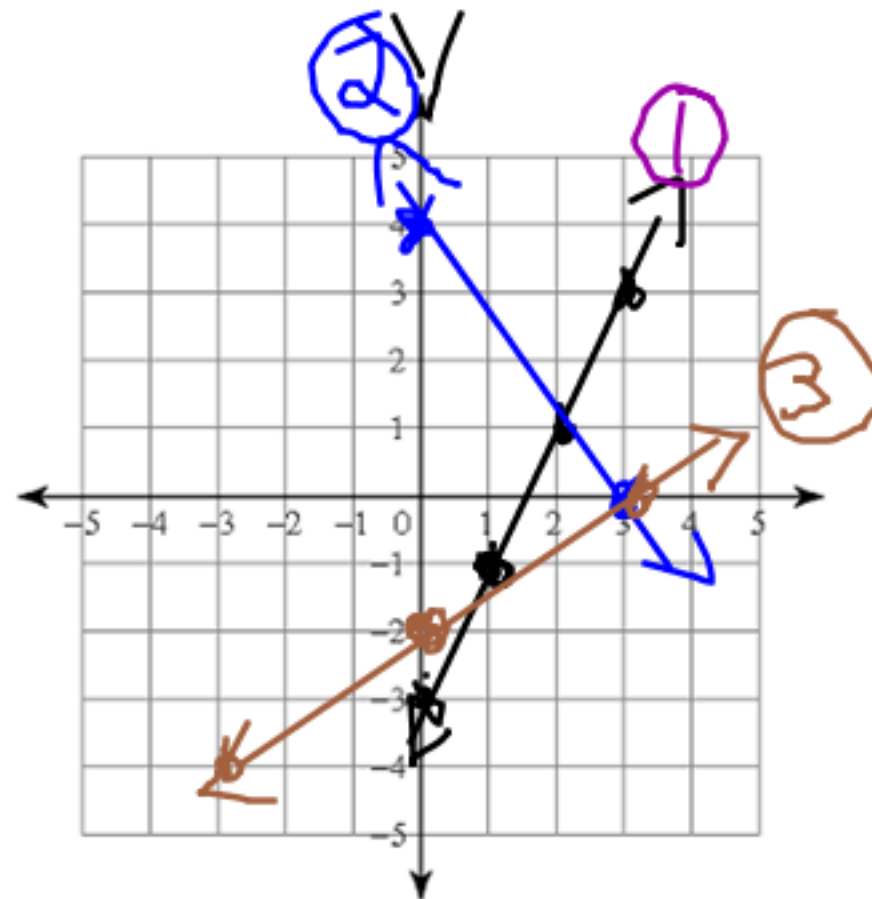
$$2x - 3y = 6$$

$$-3y = -2x + 6$$

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

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

$$b = -2$$



$$\textcircled{1} \quad \cancel{x} - 3y = -3 - \cancel{x}$$

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

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

$$m = \frac{1}{3} \quad b = 1$$