Algebra 1 Benchmark 7.1 — **Topic: Interpreting Linear Equations**

1. Does the point (3, 7) lie on the line defined by: $y = 3x - 2$?

x y x=3 y=7

$7 = 3(3) - 2$

$7 = 9 - 2$

$7 = 7$

True

yes

2. Does the point (-1, 5) lie on the line defined by: $5x + y = -2$?

x y y=5 x=-1

$5(-1) + (5) = -2$

$-5 + 5 = -2$

$0 = -2$

False

NO

Algebra 1 Benchmark 7.2 — **Topic: Slope**

1. Find the slope of a line through (-2,1) and (1,-8)

$x_1\ y_1$ $x_2\ y_2$

$m = \frac{y_2 - y_1}{x_2 - x_1}$ $\frac{\text{rise}}{\text{run}}$ ↕ ↔

$m = \frac{-8-1}{1-(-2)} = \frac{-9}{3} = -3$

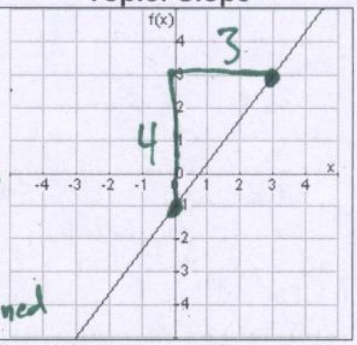
$m = -3$

2. Find the slope of the following line:

$m = \frac{\text{rise}}{\text{run}}$

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

+ ↔ 0 ↘ − ↕ undefined



Algebra 1 Benchmark 6.1 — **Topic: Graphing Linear Equations**

1. Graph the linear equation on the coordinate plane:

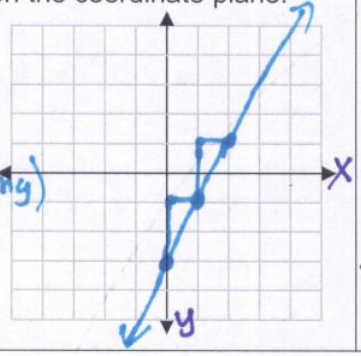
$y = 2x - 3$

$y = mx + b$

m = slope (movement)

b = y-intercept (beginning)

$m = \frac{2}{1}$ $b = -3$



2. Graph the linear equation on the coordinate plane:

$3x - y = 3$

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

$x = 1$ $y = -3$

(1, 0) (0, -3)

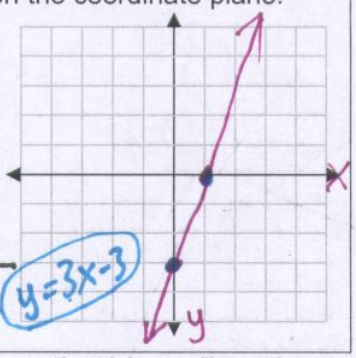
$3x - y = 3$

$-3x \quad -3x$

$-y = -3x + 3$

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

$y = 3x - 3$



Algebra 1 Benchmark 6.2 — **Topic: Deriving & Interpreting Linear Equations**

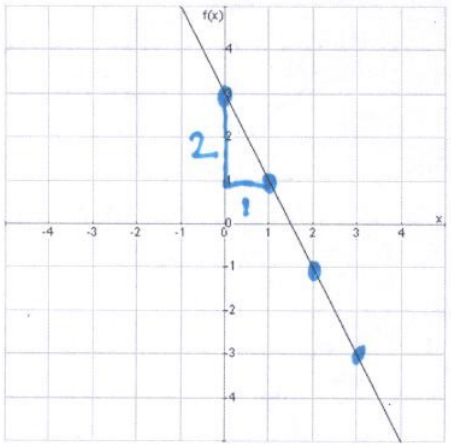
1. What is the equation of the following graph?

$y = mx + b$

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

$b = 3$

$y = -2x + 3$



2. What is the slope and y-intercept for the following equations?

$2x - 3y = 12$

$-2x \quad -2x$

$\frac{-3y}{-3} = \frac{-2x}{-3} + \frac{12}{-3}$

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

m b

Slope: $\frac{2}{3}$

y-intercept: (0, -4)

3. What are the x and y-intercepts of the following linear equation?

$4y - 6x = 12$

$4(0) - 6x = 12$ x-int

$\frac{-6x}{-6} = \frac{12}{-6}$ $x = -2$

$4y - 6(0) = 12$

$\frac{4y}{4} = \frac{12}{4}$ $y = 3$

x-intercept: (-2, 0)

y-intercept: (0, 3)