Name Key

Mrs. Roumbos

Date

8R Period

Equation of a line: Day II

Equation of a line

Coefficient of x ... Constant

Slope-Intercept Form: $y = mx + b$ where **m = slope** & **b = y-intercept** (where the line crosses the y-axis)

A) What is the slope & y-intercept of the following?

$y = mx + b$

Ex's 1) $y = 3x + 2$

$y = mx + b$

$m = 3$
$b = 2$

2) $y = -6x - 3$

$m = -6$
$b = -3$

3) $y = x + 2$

$m = 1$
$b = 2$

Extra Example

$y = 3x$
$m = 3$
$b = 0$

4) $\frac{2y}{2} = \frac{6x}{2} + \frac{12}{2}$

$y = 3x + 6$

$m = 3$
$b = 6$

5) $3x + y = 5$

$-3x \quad -3x$

$y = -3x + 5$

$y = mx + b$

$m = -3$
$b = 5$

6) $4x + 2y = 10$

$-4x \quad -4x$

* move the # with the x first!

A/S MDEP

$\frac{2y}{2} = \frac{-4x}{2} + \frac{10}{2}$

$y = -2x + 5$

$m = -2$
$b = 5$

B) Create an equation given the slope and y-intercept

$y = mx + b$ (slope) (y-int)

1) Slope = -6, y-intercept = 5

$y = mx + b$
$m = -6$
$b = 5$

$y = -6x + 5$

2) Slope = $\frac{1}{2}$, y-intercept = 3

$y = mx + b$
$m = \frac{1}{2}$
$b = 3$

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

3) Slope = -4, y-intercept = 3

$y = mx + b$
$m = -4$
$b = 3$

$y = -4x + 3$

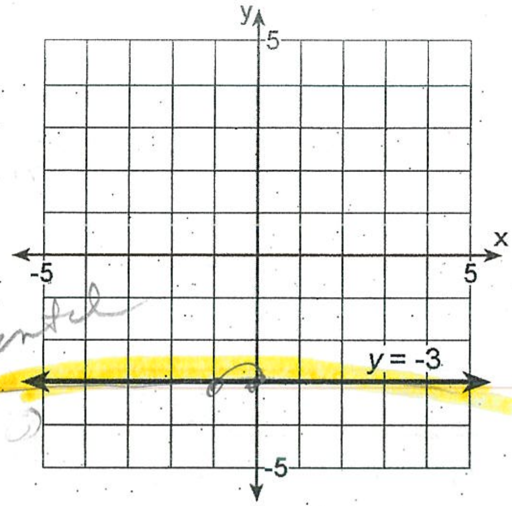
4) Slope = 7, y-intercept = -8

$y = mx + b$
$m = 7$
$b = -8$

$y = 7x - 8$

Review

1) Determine the slope of the line graphed below.



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

$m = \frac{0}{1}$

$m = 0$

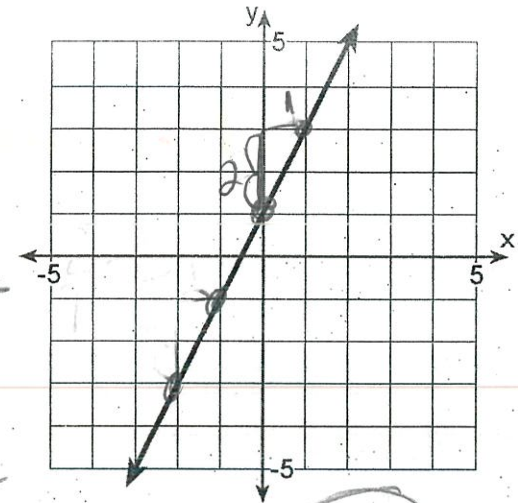
A) -3

B) 0

C) undefined

D) $\frac{1}{3}$

3) Determine the slope of the line graphed below.



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

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

$m = 2$

A) 4

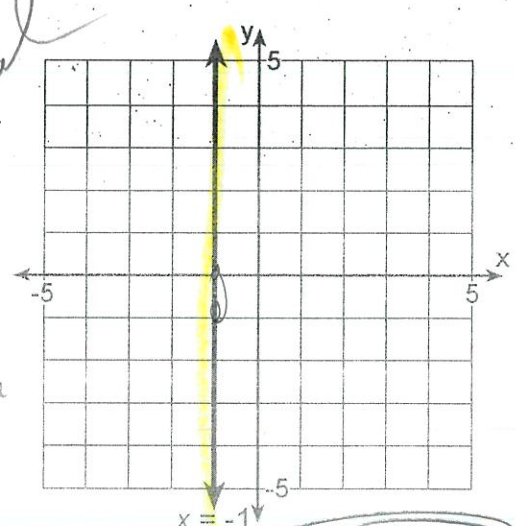
B) -2

C) 2

D) -1

2) Determine the slope of the line graphed below.

vertical



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

$m = \frac{1}{0}$

m = undefined

A) 0

B) -1

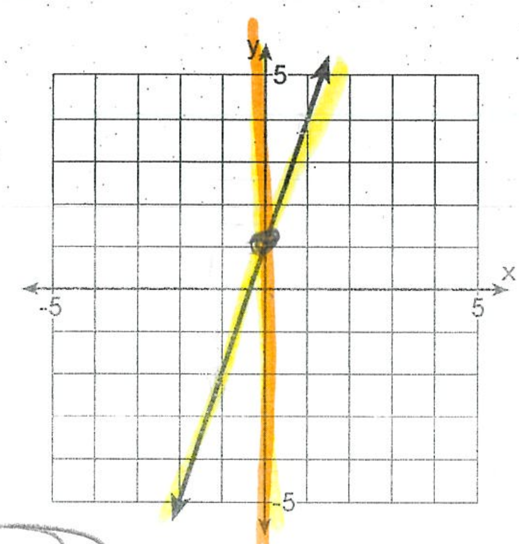
C) undefined

D) 1

no slope

4) Determine the y-intercept of the line graphed below.

→ where the line intersects the y-axis



A) 1

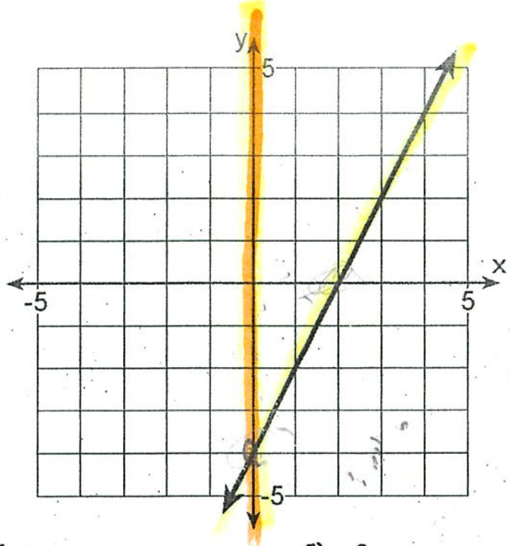
B) -3

C) 3

D) -1

→ when the line intersects the y-axis

5) Determine the y-intercept of the line graphed below.



A) 4
B) -2
C) 2
D) -4

6) The graph of which equation has a slope of 3 and a y-intercept of -4?

m

b

A) $y = 3x + 4$
B) $y = 3x - 4$
C) $y = -4x\ 3$
D) $y = -4x + 3$

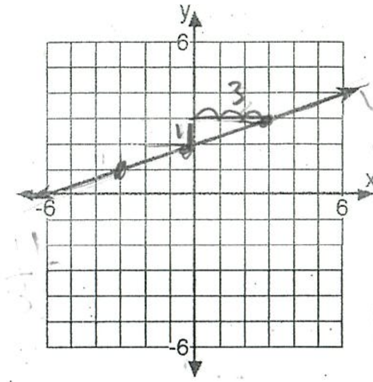
m b

$y = mx + b$

$m = 3$

$b = -4$

7)



$y = mx + b$

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

$b = 2$

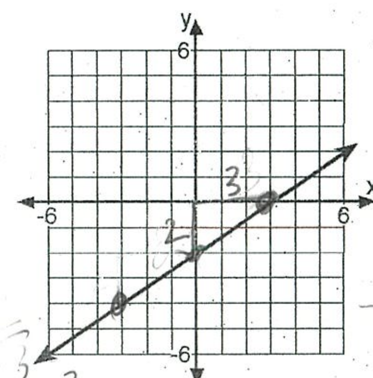
$m = \frac{\text{rise}}{\text{run}}$

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

Which equation correctly describes the given graphed line?

A) $y = -\frac{1}{3}x + 2$
B) $y = \frac{1}{3}x + 2$
C) $y = -3x + 2$
D) $y = 3x + 2$

8)



$y = mx + b$

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

$b = -2$

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

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

What is the equation of the given graphed line?

A) $y = -\frac{3}{2}x - 2$
B) $y = \frac{2}{3}x - 2$
C) $y = \frac{3}{2}x - 2$
D) $y = -\frac{2}{3}x - 2$

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

$b = -2$

Find the slope + y-intercept

$y = mx + b$ (m: slope, b: y-int)

1) $3y = 6x + 9$

$\frac{3y}{3} = \frac{6x}{3} + \frac{9}{3}$

$y = 2x + 3$

$\boxed{m = 2 \quad B = 3}$

2) $y = 8 + 4x$

$y = 4x + 8$

$\boxed{m = 4 \quad B = 8}$

3) $6x + y = 3$

$-6x \quad -6x$

$y = -6x + 3$

$\boxed{m = -6 \quad B = 3}$

4) $-7x + y = -4$

$+7x \quad +7x$

$y = 7x - 4$

$\boxed{m = 7 \quad B = -4}$

5) $6x + 2y = 12$

$-6x \quad -6x$

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

$y = -3x + 6$ $\boxed{m = -3 \quad B = 6}$

move the x 1st!

6) $-y = 2x - 3$

$-1 \cdot y$

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

$y = -2x + 3$

$\boxed{m = -2 \quad B = 3}$

7) $3y - 4x = 6$

$+4x \quad +4x$

$\frac{3y}{3} = \frac{4x}{3} + \frac{6}{3}$

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

$\boxed{m = \frac{4}{3} \quad B = 2}$

move the x 1st!