Equations for a Line

- **Slope-Intercept Form** $y = mx + b$
- **Standard Form** $Ax + By = C$
- **Point-Slope Form** $y - y_1 = m(x - x_1)$

After the quiz do these two problems:

1. Write the equation, in Slope-Intercept Form of the line that passes through the points (9, 4) and (-3, 12)

2. Write the equation, in Slope-Intercept Form of the line that passes through the points (5, -2) and (-6, -2)

Writing the equation of a line in Slope-Intercept Form:

Write the equation of the line that passes through these two points in Slope-Intercept Form

(9, 4) and (-3, 12)

Method 1:

First: Find the slope. $\frac{12-4}{-3-9} = \frac{8}{-12} = -\frac{2}{3}$

Second: Write the equation in Point-Slope Form $y - 4 = -\frac{2}{3}(x - 9)$

Third: Change Point-Slope into Slope-Intercept $y - 4 = -\frac{2}{3}x + 6$, $+4 \quad +4$

$y = -\frac{2}{3}x + 10$

Method 2: (9, 4) and (-3, 12)

First: Find the slope. $-\frac{2}{3}$

Second: Replace m in $y = mx + b$ with the slope $y = -\frac{2}{3}x + b$

Third: Replace y and x with the coordinates of one of the points $4 = -\frac{2}{3}(9) + b$

Fourth: Solve for b. $4 = -6 + b$, $+6 \quad +6$, $b = 10$

Fifth: Rewrite $y = mx + b$ with the values of m and b you've found. $y = -\frac{2}{3}x + 10$

2. Write the equation, in Slope-Intercept Form of the line that passes through the points (5, -2) and (-6, -2)

$y = 0x + b$

$y = b$

$-2 = b$

$y = -2$

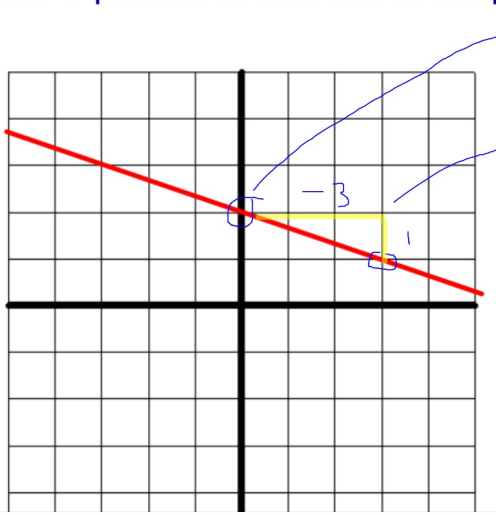
Write the equation of the line that passes through this pair of points in Slope-Intercept Form:

(-4, -3) and (8, 6)

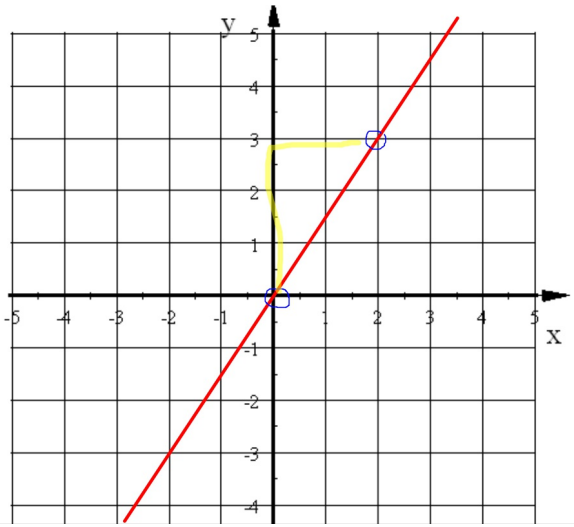
Write the equation of the line that passes through this pair of points in Slope-Intercept Form:

(-3, 9) and (9 - 5)

Write the equation of this line in Slope-Intercept Form:

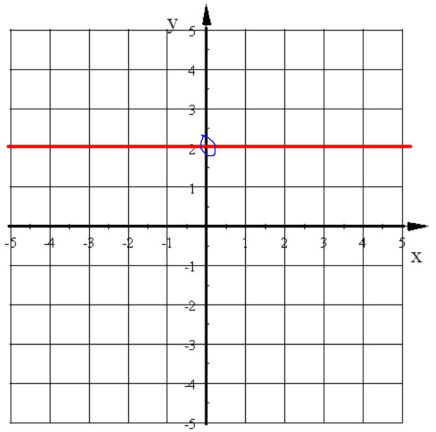


Write the equation of this line in Slope-Intercept Form:



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

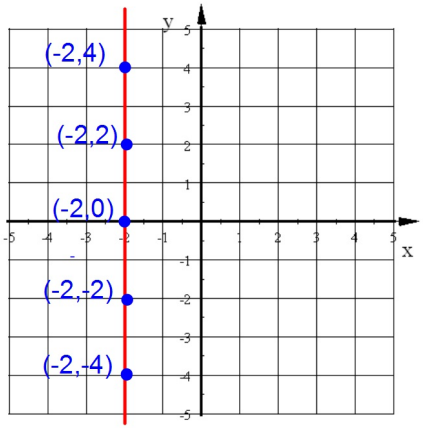
Write the equation of this line in Slope-Intercept Form



$y = 0x + 2$

$y = 2$

Can you write the equation of this line in Slope-Intercept Form?



Point-Slope Form?

No, the slope is undefined and you can't replace m with a word.

$x = -2$

all points on this line have an x-coordinates of -2

Norma won a $100 prize. Her dad put it in a savings account for her then she added $5 each week to the savings account. Model this situation with an equation.

$y = 5x + 100$

x = # weeks
y = total $

When slope-intecept models a real situation