

Sep 14, 2012

Section 3.4

## Slopes

Slope: Describes the steepness of a line

$$\frac{\text{rise}}{\text{run}} \quad \frac{\Delta y}{\Delta x} \quad \Delta = \text{delta} \quad (\text{change in})$$

2 points

$$m = \frac{y_2 - y_1}{x_2 - x_1} \quad (x_1, y_1) \quad (x_2, y_2)$$

(4, -2)

(3, 8)

$$m = \frac{-2 - 8}{4 - 3} = \frac{-10}{1} = -10$$

$$= \frac{8 - -2}{3 - 4} = \frac{10}{-1} = -10$$

## Equation

$$5x - 8y = 6$$
$$y = mx + b \quad (\text{Solve for } y)$$

$$-8y = -5x + 6$$

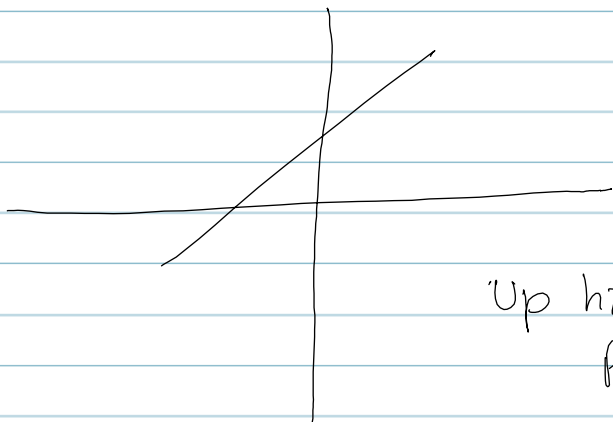
$$y = \frac{-5}{8}x + \frac{6}{8}$$

$$y = \frac{5}{8}x + \frac{3}{4}$$

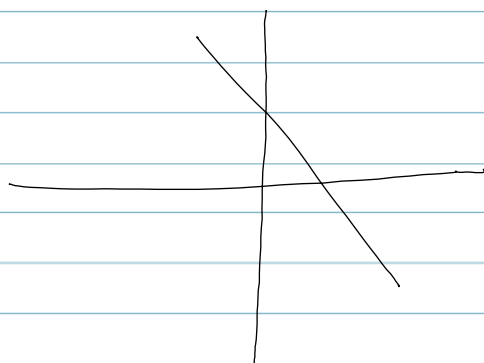
$$m = \frac{5}{8}$$

$$(0, \frac{3}{4})$$

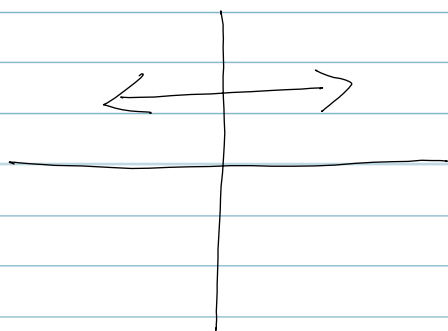
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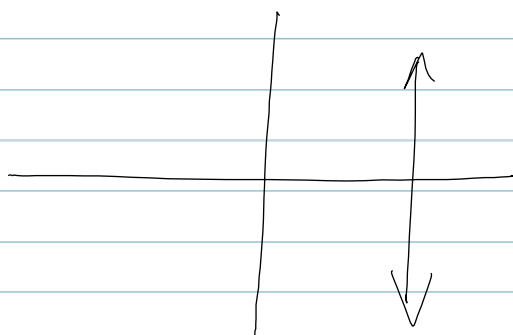
Up hill (L to R)  
positive



down hill (L to R)  
Negative



$m = 0$



$m = \text{undefined}$

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parallel //

Same slope

$$m_1 = 2 \quad m_2 = 2$$

Perpendicular ⊥

Opposite reciprocal slopes

$$m_1 = \frac{2}{3} \quad m_2 = -\frac{3}{2}$$

$$\text{check: } m_1 m_2 = -1$$