

Notes

### 3.2 Equation of a Line pp 115 -117

A linear equation forms a straight line when graphed and the line has an equation, which can be written in the form of  $y=mx + b$

m - represents the slope or rate of change of the line/equation.

b - represents where the line crosses the y- axis called the y- intercept.

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The equation of a line can be expressed in:

Slope-Intercept Form:

$$\left[ y = mx + b \right]$$

slope  
(rise over run  
or rate of change)

y-intercept  
(where the line  
intersects the  
y-axis)

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Examples - Determine the slope( $m$ ) and  $y$ - intercept( $b$ ) from the following equations

1)  $y = 3x - 5$

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

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When the equation of a line is in the form  $y=mx+b$ ,

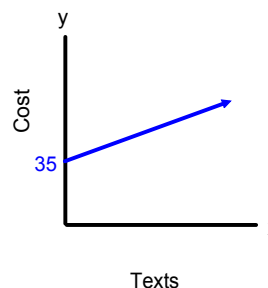
$m = \text{slope}$  and  $b = \text{y-intercept}$

Example - A cell phone company charges \$ 0.15 for every text plus a flat fee(monthly fee) of \$ 35.00 per month.

Cost = # of Texts + basic charge

$$y = mx + b$$

$$y = 0.15x + 35$$



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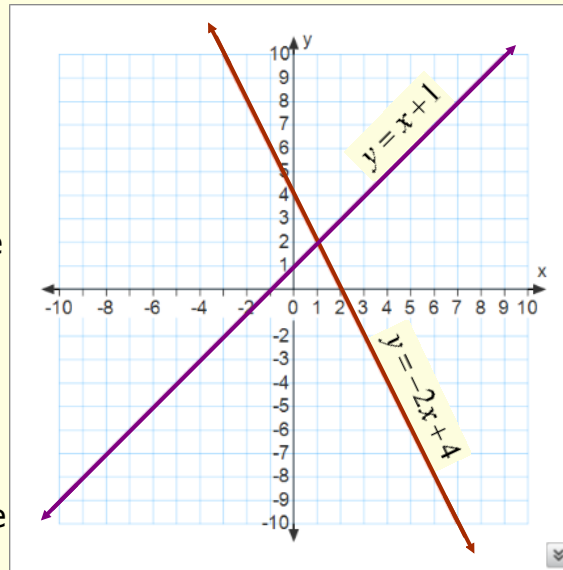
Can you identify the slope and y-intercept of each of these lines?

The two variables needed to state the equation of the line are:

- $m$  - the slope of the line
- $b$  - the y-intercept

The slope and y-intercept define a specific line.

Two distinctly different lines will differ based on either the slope and/or the y-intercept.



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Apr 25-4:16 PM