

6.4 Slope-Intercept Form of the Equation for a linear Function

Lesson 4

Jan 30-4:12 PM

Connect **NOTES:**

This graph shows a cyclist's journey where the distance is measured from her home.

What does the vertical intercept represent?
 Distance from the home in km

What does the slope of the line represent?
 $\frac{\Delta y}{\Delta x} = \frac{\text{km}}{\text{h}}$
 km per hour

Graph of a Bicycle Journey

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Connect **NOTES:**

A cell phone plan charges a monthly fee that covers the costs of the first 300 minutes of the phone use.

How do you know this is a graph of a linear function?
 Straight line
 Passes vertical test

What does the slope of the graph represent?
 $\frac{\$}{\text{min}} \quad \frac{15}{10} = \frac{3}{2} \quad 30¢/\text{min.}$

Cost of Cell Phone Plan

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Connect **NOTES:**

A cell phone plan charges a monthly fee that covers the costs of the first 300 minutes of the phone use.

Write an equation to describe this function.
 $C = \frac{3}{10}n + 20$

Verify that your equation is correct. $(100, 50)$

$50 = \frac{3}{10}(100) + 20 \rightarrow 50 = 30 + 20$
 $50 = 300 + 20 \rightarrow 50 = 50 \quad \checkmark$

Cost of Cell Phone Plan

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Connect **NOTES:**

The linear function shown represents the cost of a car rental.

The equation of the function is:

$$C = \frac{1}{5}d + 60$$

Slope (Rate of Change) = $\frac{40}{200} = \frac{4}{20} = \frac{2}{10} = \frac{1}{5}$

Vertical intercept (constant) = $y\text{-int} : 60$

Connect **NOTES:**

A linear function can be described as follows:

Dependent $y = mx + b$ Independent

slope \rightarrow y -intercept

Slope-Intercept Form of the Equation of a Linear Function

The equation of a linear function can be written in the form $y = mx + b$, where m is the slope of the line and b is its y -intercept.

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Practice **EXAMPLE 1**

The graph of a linear function has slope of $\frac{3}{5}$ and y -intercept -4 .

Write the equation for this function using $y = mx + b$

$$y = mx + b$$

$$y = \frac{3}{5}x - 4$$

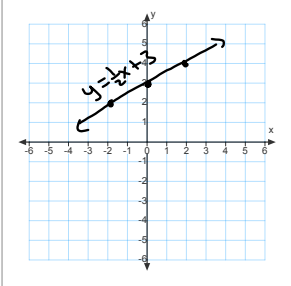
Practice **YOU TRY!**

The graph of a linear function has slope of $\frac{-7}{3}$ and y -intercept 5 .

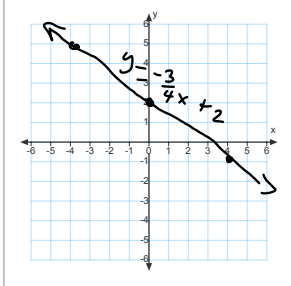
Write the equation for this function using $y = mx + b$

$$y = mx + b$$

$$y = \frac{-7}{3}x + 5$$

<p style="background-color: #0056b3; color: white; padding: 2px; display: inline-block; border-radius: 4px;">Practice</p>	<p style="color: red; font-weight: bold;">EXAMPLE 2</p>
<p>Graph the linear function with equation: $y = \frac{1}{2}x + 3$</p>	
	<p>Steps:</p> <ol style="list-style-type: none"> 1) Use y-intercept as start point. 2) Use slope to help find one point above and one point below 3) Use a ruler to connect the 3 points.

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<p style="background-color: #0056b3; color: white; padding: 2px; display: inline-block; border-radius: 4px;">Practice</p>	<p style="color: red; font-weight: bold;">YOU TRY!</p>
<p>Graph the linear function with equation: $y = -\frac{3}{4}x + 2$</p>	
	<p>Steps:</p> <ol style="list-style-type: none"> 1) Use y-intercept as start point. 2) Use slope to help find one point above and one point below 3) Use a ruler to connect the 3 points.

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<p style="background-color: #0056b3; color: white; padding: 2px; display: inline-block; border-radius: 4px;">Practice</p>	<p style="color: red; font-weight: bold;">HOMEWORK!</p>
<p>Textbook Questions:</p> <p>Page 362 # 4, 5, 6, 7,8,9,11</p>	

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