Objective 1 - Construct a linear function from points

Use points to construct a linear function.

Link to section in online textbook.

First, watch this video to learn about what is necessary to construct a linear function.

This objective will focus on constructing linear functions from a point and slope or from two points.

Question 1 *Find the equation of the line containing the two points below. Write the equation in slope-intercept form.*
$(-5, -8)$ *and* $(7, 8)$

$y =$ $\boxed{1.3333333333333333}$ $x +$ $\boxed{-1.3333333333333321}$

Hint: *To construct a linear function, we need its slope and a single point on the line. Can we figure out the slope from two points?*

Question 2 *Find the equation of the line containing the two points below. Write the equation in slope-intercept form.*
$(2, -8)$ *and* $(-2, -6)$

$y =$ $\boxed{-0.5}$ $x +$ $\boxed{-7.0}$

Question 3 *Find the equation of the line containing the two points below. Write the equation in slope-intercept form.*
$(5, 2)$ *and* $(-5, -3)$

$y =$ $\boxed{0.5}$ $x +$ $\boxed{-0.5}$

For these problems, you'll be given a description of the line and a point. Think about what information you should get from the line, then use the point to construct a new linear function.

Learning outcomes: Recognize and construct linear functions as well as solve linear equations.

Author(s): Darryl Chamberlain Jr.

Question 4 *Find the equation of the line described below. Write the equation of the line in slope-intercept form.*

Parallel to $9\,x + 8\,y = 4$ *and passing through the point* $(7, 7)$.

$y =$ $\boxed{-1.125}\,x + \boxed{14.875}$

Hint: *If a line is parallel to another, what does that mean about its slope?*

Question 5 *Find the equation of the line described below. Write the equation of the line in slope-intercept form.*

Parallel to $7\,x + 4\,y = 13$ *and passing through the point* $(-4, -4)$.

$y =$ $\boxed{-1.75}\,x + \boxed{-11.0}$

Question 6 *Find the equation of the line described below. Write the equation of the line in slope-intercept form.*

Perpendicular to $4\,x - 7\,y = 11$ *and passing through the point* $(3, -5)$.

$y =$ $\boxed{-1.75}\,x + \boxed{0.25}$

Hint: *If a line is perpendicular to another, what does that mean about its slope?*

Question 7 *Find the equation of the line described below. Write the equation of the line in slope-intercept form.*

Perpendicular to $5\,x + 3\,y = 11$ *and passing through the point* $(-9, 8)$.

$y =$ $\boxed{0.6}\,x + \boxed{13.399999999999999}$
