

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.
 $(-8, 5)$ and $(2, -4)$

$$y = \boxed{-0.9}x + \boxed{-2.2}$$

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.
 $(6, 5)$ and $(3, -6)$

$$y = \boxed{3.6666666666666665}x + \boxed{-17.0}$$

Question 3 Find the equation of the line containing the two points below. Write the equation in slope-intercept form.
 $(-8, 3)$ and $(3, -7)$

$$y = \boxed{-0.9090909090909091}x + \boxed{-4.272727272727273}$$

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.

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

Parallel to $8x + 5y = 4$ and passing through the point $(10, -10)$.

$$y = \boxed{-1.6}x + \boxed{6.0}$$

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

$$y = \boxed{-0.5714285714285714}x + \boxed{0.0}$$

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

Perpendicular to $4x - 3y = 14$ and passing through the point $(4, -5)$.

$$y = \boxed{-0.75}x + \boxed{-2.0}$$

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 $8x - 3y = 9$ and passing through the point $(7, 9)$.

$$y = \boxed{-0.375}x + \boxed{11.625}$$
