

Exercise 63

Find the value of x if a linear function goes through the following points and has the following slope: $(x, 2)$, $(-4, 6)$, $m = 3$

Solution

The general equation of a line is

$$y = mx + b.$$

$m = 3$ is given.

$$y = 3x + b.$$

Use the given point to determine b : When the input is $x = -4$, the output is $y = 6$.

$$6 = 3(-4) + b \rightarrow 6 = -12 + b \rightarrow b = 18$$

Now that m and b are solved for, the equation of the line is known.

$$y = 3x + 18$$

Therefore, when the output is 2, the input is

$$2 = 3x + 18$$

$$-16 = 3x$$

$$x = -\frac{16}{3}.$$