

## Exercise 64

Find the value of  $x$  if a linear function goes through the following points and has the following slope:  $(10, y)$ ,  $(25, 100)$ ,  $m = -5$

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### Solution

The general equation of a line is

$$y = mx + b.$$

$m = -5$  is given.

$$y = -5x + b.$$

Use the given point to determine  $b$ : When the input is  $x = 25$ , the output is  $y = 100$ .

$$100 = -5(25) + b \quad \rightarrow \quad 100 = -125 + b \quad \rightarrow \quad b = 225$$

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

$$y = -5x + 225$$

Therefore, when the input is 10, the output is

$$y = -5(10) + 225 = 175.$$