

## Exercise 8

For the following exercises, determine whether the functions are one-to-one.

$$f(x) = |x - 3|$$

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### Solution

To determine whether the given function is one-to-one, try to find its inverse. Switch  $x$  and  $y$  in the equation.

$$x = |y - 3|$$

Remove the absolute value sign on the right by placing  $\pm$  on the left side.

$$\pm x = y - 3$$

Add 3 to both sides.

$$3 \pm x = y$$

There are two possible formulas for the inverse function,  $3 + x$  and  $3 - x$ , which means the given function is not one-to-one.