

## Exercise 20

For the following exercises, determine whether the relation represents  $y$  as a function of  $x$ .

$$x = y^3$$

### Solution

Solve for  $y$  by taking the cubed root of both sides.

$$\sqrt[3]{x} = \sqrt[3]{y^3}$$

$$\sqrt[3]{x} = (y^3)^{1/3}$$

$$\sqrt[3]{x} = y^1$$

$$y = \sqrt[3]{x}$$

The relation  $x = y^3$  is a function because for every input  $x$ , there's exactly one output given by  $y = \sqrt[3]{x}$ . This is reflected in the graph by the fact that any vertical line passes through the curve exactly once.

