

## Cube Roots

1. Find the value of  $x$  that makes the equation true:  $x^3 = 125^{-1}$ .

2. The volume of a cube is  $729 \text{ cm}^3$ . What is the length of one side of the cube? Write and solve an equation, and then check your solution.

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## Cube Roots

1. Find the value of  $x$  that makes the equation true:  $x^3 = 125^{-1}$ .

$$\begin{aligned}x^3 &= 125^{-1} \\ \sqrt[3]{x^3} &= \sqrt[3]{125^{-1}} \\ x &= \sqrt[3]{125^{-1}} \\ x &= \sqrt[3]{\frac{1}{125}} \\ x &= \frac{1}{5} \\ x &= 5^{-1}\end{aligned}$$

Check:

$$\begin{aligned}(5^{-1})^3 &= 125^{-1} \\ 5^{-3} &= 125^{-1} \\ \frac{1}{5^3} &= 125^{-1} \\ \frac{1}{125} &= 125^{-1} \\ 125^{-1} &= 125^{-1}\end{aligned}$$

2. The volume of a cube is  $729 \text{ cm}^3$ . What is the length of one side of the cube? Write and solve an equation, and then check your solution.

*Let  $x \text{ cm}$  represent the length of one side of the cube.*

$$\begin{aligned}x^3 &= 729 \\ \sqrt[3]{x^3} &= \sqrt[3]{729} \\ x &= \sqrt[3]{729} \\ x &= 9\end{aligned}$$

Check:

$$\begin{aligned}9^3 &= 729 \\ 729 &= 729\end{aligned}$$

*The length of one side of the cube is 9 cm.*