e to represent the birdhouse.
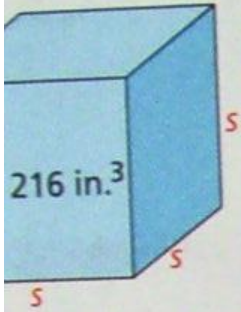
$16 = s \cdot s \cdot s$

$16 = s^3$

nat is a cube of
s a **perfect cube**.

r 216 is also a
e.

To find the value of s, find the cube root of 216. Th
cube root of a number is a number whose cube is
equal to that number.

The symbol $\sqrt[3]{}$ means
the cube root of a number.

$$\sqrt[3]{216} = \sqrt[3]{6 \cdot 6 \cdot 6}$$
$$= \sqrt[3]{6^3}$$
$$= 6$$

Taking the cube root
and cubing a number
are inverse operations.

The dimensions of each square piece of wood are
6 inches by 6 inches.

---

sculpture has a volume of 64 cubic feet. What is
edge of the cube?

edge is ☐ feet.

$$\sqrt[3]{64} = \sqrt[3]{\boxed{4} \cdot \boxed{4} \cdot \boxed{4}}$$

$$\sqrt[3]{64} = \sqrt[3]{\boxed{4}^3}$$

$$\sqrt[3]{64} = \boxed{4}$$

! How can you find the cube root of 64?

EXAMPLE 2 🖐 **Evaluate Perfect Squares and Perfect Cubes**

Evaluate.

A. $\sqrt[3]{64}$

$\sqrt[3]{64} = \sqrt[3]{4 \cdot 4 \cdot 4}$

$= \sqrt[3]{4^3}$

$= 4$

B. $\sqrt{100}$

$\sqrt{100} = \sqrt{10 \cdot 10}$

$= \sqrt{10^2}$

$= 10$

C. $\sqrt{49}$

$\sqrt{49} = \sqrt{7 \cdot 7}$

$= \sqrt{7^2}$

$= 7$

D. $\sqrt[3]{8}$

$\sqrt[3]{8} = \sqrt[3]{2 \cdot 2 \cdot 2}$

$= \sqrt[3]{2^3}$

$= 2$

☑ Try It!

Evaluate.

a. $\sqrt[3]{27} = 3$

b. $\sqrt{25} = 5$

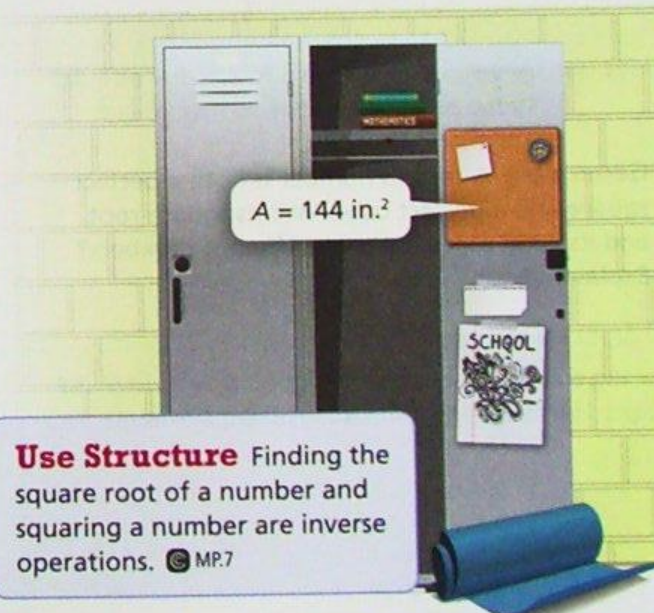c. $\sqrt{81} = 9$

d. $\sqrt[3]{1} = 1$

EXAMPLE 3 🖐 Evaluate Square Roots to Solve Problems

Sean cuts one sheet of colorful poster paper to cover the bulletin board exactly. What are the dimensions of the poster paper?

Find the square root of the area to find the side lengths of the bulletin board.

$$\sqrt{144} = \sqrt{12 \cdot 12}$$
$$= \sqrt{12^2}$$
$$= 12$$

Each side of the bulletin board measures 12 inches. Sean will need to cut a 12-inch by 12-inch sheet of poster paper.

$A = 144$ in.^{2}

Use Structure Finding the square root of a number and squaring a number are inverse operations. Ⓒ MP.7

☑ Try It!

Emily wants to buy a tablecloth to cover a square card table. She knows the tabletop has an area of 9 square feet. What are the minimum dimensions of the tablecloth Emily needs?

Emily should buy a tablecloth that measures at least

$\boxed{3}$ feet by $\boxed{3}$ feet.

$\sqrt{9} = \sqrt{\boxed{3} \cdot \boxed{3}}$

$= \sqrt{\boxed{3}^2}$

$= \boxed{3}$