

7.2

FINDING CUBE ROOTS

Today's Learning Goals:

- Find cube roots of perfect cubes.
- Evaluate expressions involving cube roots.
- Use cube roots to solve equations.

Perfect Cubes

Perfect Cubes that you should memorize

1^3	4^3	7^3
2^3	5^3	8^3
3^3	6^3	9^3
		10^3

Cube Roots

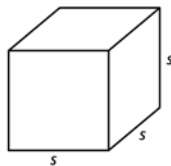
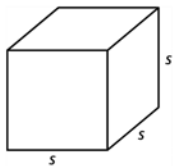
Perfect Cube Roots that you should memorize

$\sqrt[3]{1}$	$\sqrt[3]{64}$	$\sqrt[3]{343}$
$\sqrt[3]{8}$	$\sqrt[3]{125}$	$\sqrt[3]{512}$
$\sqrt[3]{27}$	$\sqrt[3]{216}$	$\sqrt[3]{729}$
		$\sqrt[3]{1000}$

Do Now

Find the edge length of the cube.

1. Volume = $64,000 \text{ ft}^3$ 2. Volume = $\frac{1}{216} \text{ ft}^3$



Finding Cube Roots

Find each cube root.

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

b. $\sqrt[3]{-27}$

c. $\sqrt[3]{\frac{1}{64}}$

Evaluating with Cube Roots

Evaluate each expression.

a. $2\sqrt[3]{-216} - 3$

PE(R)MDAS

b. $(\sqrt[3]{125})^3 + 21$

On Your Own

Find the cube root.

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

2. $\sqrt[3]{-343}$

3. $\sqrt[3]{-\frac{27}{1000}}$

Evaluate the expression.

4. $18 - 4\sqrt[3]{8}$

5. $(\sqrt[3]{-64})^3 + 43$

6. $5\sqrt[3]{512} - 19$

Evaluating with Cube Roots

Evaluate $\frac{x}{4} + \sqrt[3]{\frac{x}{3}}$ when $x = 192$.

On Your Own

PE(R)MDAS

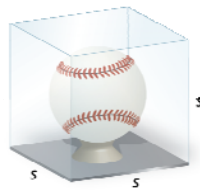
Evaluate the expression for the given value of the variable.

7. $\sqrt[3]{8y} + y, y = 64$

8. $2b - \sqrt[3]{9b}, b = -3$

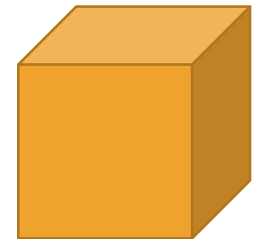
Critical Thinking...

Find the surface area of the baseball display case.



With Your Partner

9. The volume of a music box that is shaped like a cube is 512 cubic centimeters. Find the surface area of the music box.



Did You Understand?

Explain the difference between $\sqrt{64}$ and $\sqrt[3]{64}$.