

Lesson 7.2:

Finding Cube Roots

Essential Question

How is the cube root of a number different from the square root of a number?

Cubes

$$1^3 = 1$$

$$7^3 = 343$$

$$2^3 = 8$$

$$8^3 = 512$$

$$3^3 = 27$$

$$9^3 = 729$$

$$4^3 = 64$$

$$10^3 = 1,000$$

$$5^3 = 125$$

$$11^3 = 1,331$$

$$6^3 = 216$$

$$12^3 = 1,728$$

Find each cube root.

a. $\sqrt[3]{8} = 2$

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

c. $\sqrt[3]{\frac{1}{64}} = \frac{\sqrt[3]{1}}{\sqrt[3]{64}} = \frac{1}{4}$

Find the cube root.

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

1

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

-7

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

$$-\frac{\sqrt[3]{27}}{\sqrt[3]{1000}} = -\frac{3}{10}$$

Evaluate the expression.

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

$18 - 4(2)$

$18 - 8$

10

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

$-64 + 43$

-21

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

$5(8) - 19$

$40 - 19$

21

Evaluate the expression for the given value of the variable.

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

$\sqrt[3]{8 \cdot 64} + 64$

$\sqrt[3]{8} \cdot \sqrt[3]{64} + 64$

$2 \cdot 4 + 64$

$8 + 64$

72

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

$2(-3) - \sqrt[3]{9(-3)}$

$-6 - \sqrt[3]{-27}$

$-6 - (-3)$

$-6 + 3$

-3