Cube Root of a Rational Number

A. Choose the correct answer:

1. The cube root of $\frac{1}{8}$ is.

a) 12 b) 21

c) 14 d) 41

2. The cube root of a rational number $\frac{a}{b}$ is.

a) $\frac{a}{b}$ b) $\frac{\sqrt[3]{a}}{\sqrt[3]{b}}$

c) a × b d) $\sqrt[3]{a \times b}$

3. The cube root of $\frac{27}{64}$ is.

a) $\frac{3}{4}$ b) $\frac{4}{3}$

c) $\frac{3}{8}$ d) $\frac{8}{3}$

4. If $\sqrt[3]{\frac{a}{b}} = \frac{\sqrt[3]{a}}{\sqrt[3]{b}}$, then what is $\sqrt[3]{\frac{125}{216}}$.

a) $\frac{5}{4}$ b) $\frac{5}{6}$

c) $\frac{6}{5}$ d) $\frac{4}{5}$

5. The cube root of $\frac{1}{27}$ is.

a) $\frac{1}{3}$ b) $\frac{3}{1}$

c) $\frac{1}{9}$ d) $\frac{9}{1}$

B. Write the Missing Terms to Complete the Sentences:

1. The cube root of $\frac{8}{27}$ is _____.
3. $\sqrt[3]{\left(\frac{a}{b}\right)}$ = $\sqrt[3]{a}$ divided by $\sqrt[3]{\quad}$ _____.
4. The cube root of $\frac{1}{64}$ is _____.
5. Cube root of a rational number is found by finding the cube root of numerator and _____ separately.
6. Cube root of $\frac{1}{1}$ is _____.

C. Figure out the answers to these questions:

1. Find the cube root of $\frac{1}{125}$.
2. Find the cube root of $\frac{64}{125}$.
3. Explain the method to find the cube root of a rational number.
4. Find the cube root of $\frac{8}{343}$
5. Find $\sqrt[3]{\frac{27}{512}}$.

D. Mark each sentence with a True (✔) or False (✗):

1. Cube root of $\frac{1}{8}$ is 2. ____
2. Cube root of $\frac{1}{27}$ is $\frac{1}{3}$. ____
3. Cube root of $\frac{125}{64}$ is $\frac{5}{4}$. ____
4. Cube root of a rational number is always rational. ____
5. Cube root of 1 is 1. ____

E. Challenge yourself with these questions:

1. Find the cube root of $\frac{1}{512}$.
2. Write two examples of rational numbers and find their cube roots.
3. Find the cube root of $\frac{27}{343}$.
4. Find the cube root of $\frac{8}{27}$.
5. Explain why cube roots of rational numbers are easier when both numerator and denominator are perfect cubes.