



#### Cubes and Cubes Roots Ex 4.4 Q8

**Answer :**

(i)

$$\text{LHS} = \frac{\sqrt[3]{729}}{\sqrt[3]{1000}} = \frac{\sqrt[3]{9 \times 9 \times 9}}{\sqrt[3]{10 \times 10 \times 10}} = \frac{9}{10}$$

$$\text{RHS} = \sqrt[3]{\frac{729}{1000}} = \sqrt[3]{\frac{9 \times 9 \times 9}{10 \times 10 \times 10}} = \sqrt[3]{\frac{9}{10} \times \frac{9}{10} \times \frac{9}{10}} = \sqrt[3]{\left(\frac{9}{10}\right)^3} = \frac{9}{10}$$

Because LHS is equal to RHS, the equation is true.

(ii)

$$\text{LHS} = \frac{\sqrt[3]{-512}}{\sqrt[3]{343}} = \frac{-\sqrt[3]{512}}{\sqrt[3]{343}} = \frac{-\sqrt[3]{\{2 \times 2 \times 2\} \times \{2 \times 2 \times 2\} \times \{2 \times 2 \times 2\}}}{\sqrt[3]{7 \times 7 \times 7}} = \frac{-(2 \times 2 \times 2)}{7} = \frac{-8}{7}$$

RHS =

$$\begin{aligned} & \sqrt[3]{\frac{-512}{343}} \\ &= \sqrt[3]{\frac{(-2) \times (-2) \times (-2) \times (-2) \times (-2) \times (-2) \times (-2) \times (-2) \times (-2)}{7 \times 7 \times 7}} \\ &= \sqrt[3]{\frac{(-2) \times (-2) \times (-2)}{7} \times \frac{(-2) \times (-2) \times (-2)}{7} \times \frac{(-2) \times (-2) \times (-2)}{7}} \\ &= \sqrt[3]{\left(\frac{-8}{7}\right)^3} \\ &= \frac{-8}{7} \end{aligned}$$

Because LHS is equal to RHS, the equation is true.

#### Cubes and Cubes Roots Ex 4.4 Q9

**Answer :**

(i) 5

$$\sqrt[3]{125 \times 27} = 3 \times \underline{5}$$

$$\begin{aligned} \therefore \sqrt[3]{125 \times 27} &= \sqrt[3]{125} \times \sqrt[3]{27} = \sqrt[3]{5 \times 5 \times 5} \times \sqrt[3]{3 \times 3 \times 3} \\ &= 5 \times 3 \\ &= 3 \times 5 \quad (\text{Commutative law}) \end{aligned}$$

(ii)  $8 \times 8 = 64$

$$\therefore \sqrt[3]{8 \times \underline{8 \times 8}} = 8$$

(iii) 3

$$\therefore \sqrt[3]{1728} = 12 = 4 \times 3$$

(iv) 20

$$\therefore \sqrt[3]{480} = \sqrt[3]{\{2 \times 2 \times 2\} \times 2 \times 2 \times 3 \times 5} = 2 \times \sqrt[3]{3} \times \sqrt[3]{5 \times 2 \times 2} = \sqrt[3]{3} \times 2 \times \sqrt[3]{20}$$

(v)  $7 \times 8 = 56$

$$\therefore \sqrt[3]{7 \times 8} = \sqrt[3]{7} \times \sqrt[3]{8}$$

$$(vi) 4 \times 5 \times 6 = 120$$

$$\therefore \sqrt[3]{4 \times 5 \times 6} = \sqrt[3]{4} \times \sqrt[3]{5} \times \sqrt[3]{6}$$

$$(vii) 3$$

$$\therefore \sqrt[3]{\frac{27}{125}} = \frac{\sqrt[3]{27}}{\sqrt[3]{125}} = \frac{3}{5}$$

$$(viii) 11$$

$$\therefore \sqrt[3]{\frac{729}{1331}} = \frac{\sqrt[3]{729}}{\sqrt[3]{1331}} = \frac{9}{11}$$

$$(ix) 13 \times 13 \times 13 = 2197$$

$$\therefore \sqrt[3]{\frac{512}{13^3}} = \frac{\sqrt[3]{8^3}}{\sqrt[3]{13^3}} = \frac{8}{13}$$

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