Cubes and Cubes Roots Ex 4.4 Q8

Answer :

(i)

$$\text{LHS} = \frac{\sqrt[3]{729}}{\sqrt[3]{1000}} = \frac{\sqrt[3]{9\times9\times9}}{\sqrt[3]{10\times10\times10}} = \frac{9}{10}$$

$$\text{RHS} = \sqrt[3]{\frac{729}{1000}} = \sqrt[3]{\frac{9\times9\times9}{10\times10\times10}} = \sqrt[3]{\frac{9}{10}\times\frac{9}{10}\times\frac{9}{10}} = \sqrt[3]{\left(\frac{9}{10}\right)^3} = \frac{9}{10}$$

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

(ii)

$$\text{LHS} = \frac{\sqrt[3]{-512}}{\sqrt[3]{343}} = \frac{-\sqrt[3]{512}}{\sqrt[3]{343}} = \frac{-\sqrt[3]{\{2\times2\times2\}\times\{2\times2\times2\}\times\{2\times2\times2\}}}{\sqrt[3]{7\times7\times7}} = \frac{-(2\times2\times2)}{7} = \frac{-8}{7}$$

RHS =

$$\sqrt[3]{\frac{-512}{343}}$$

$$= \sqrt[3]{\frac{(-2)\times(-2)\times(-2)\times(-2)\times(-2)\times(-2)\times(-2)\times(-2)\times(-2)}{7\times7\times7}}$$

$$= \sqrt[3]{\frac{(-2)\times(-2)\times(-2)}{7}\times\frac{(-2)\times(-2)\times(-2)}{7}\times\frac{(-2)\times(-2)\times(-2)}{7}}$$

$$= \sqrt[3]{\left(\frac{-8}{7}\right)^3}$$

$$= \frac{-8}{7}$$

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

Cubes and Cubes Roots Ex 4.4 Q9

Answer :

(i) 5

$\sqrt[3]{125\times27} = 3\times\underline{5}$

$\because \sqrt[3]{125\times27} = \sqrt[3]{125}\times\sqrt[3]{27} = \sqrt[3]{5\times5\times5}\times\sqrt[3]{3\times3\times3}$

$= 5\times3$

$= 3\times5$ (Commutative law)

(ii) $8\times8 = 64$

$\because \sqrt[3]{8\times\underline{8\times8}} = 8$

(iii) 3

$\because \sqrt[3]{1728} = 12 = 4\times3$

(iv) 20

$\because \sqrt[3]{480} = \sqrt[3]{\{2\times2\times2\}\times2\times2\times3\times5} = 2\times\sqrt[3]{3}\times\sqrt[3]{5\times2\times2} = \sqrt[3]{3}\times2\times\sqrt[3]{20}$

(v) $7\times8 = 56$

$\because \sqrt[3]{7\times8} = \sqrt[3]{7}\times\sqrt[3]{8}$

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

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

(vii) 3

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

(viii) 11

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

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

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

********** END **********