



Exercise 4D

Hence, the cube root of 512 is 8.

Q4

Answer :

(c) 20

$$\begin{aligned}\sqrt[3]{125 \times 64} &= \sqrt[3]{125} \times \sqrt[3]{64} = \sqrt[3]{5 \times 5 \times 5} \times \sqrt[3]{2 \times 2 \times 2 \times 2 \times 2 \times 2} \\ \sqrt[3]{125 \times 64} &= \sqrt[3]{(5)^3} \times \sqrt[3]{(2)^3 \times (2)^3} = \sqrt[3]{(5)^3} \times \sqrt[3]{(4)^3} \\ \sqrt[3]{125 \times 64} &= 5 \times 4 = 20\end{aligned}$$

Hence, the cube root of $\sqrt[3]{125 \times 64}$ is 20.

Q5

Answer :

(b) $\frac{4}{7}$

$$\sqrt[3]{\frac{64}{343}} = \frac{\sqrt[3]{64}}{\sqrt[3]{343}} = \frac{\sqrt[3]{4 \times 4 \times 4}}{\sqrt[3]{7 \times 7 \times 7}} = \frac{\sqrt[3]{(4)^3}}{\sqrt[3]{(7)^3}}$$

$$\sqrt[3]{\frac{64}{343}} = \frac{4}{7}$$

$$\therefore \sqrt[3]{\frac{64}{343}} = \frac{4}{7}$$

Q6

Answer :

(b) $-\frac{8}{9}$

$$\sqrt[3]{\frac{-512}{729}} = \frac{\sqrt[3]{-512}}{\sqrt[3]{729}} = \frac{\sqrt[3]{(-8) \times (-8) \times (-8)}}{\sqrt[3]{9 \times 9 \times 9}} = \frac{\sqrt[3]{(-8)^3}}{\sqrt[3]{(9)^3}}$$

$$\sqrt[3]{\frac{-512}{729}} = \frac{-8}{9}$$

$$\therefore \sqrt[3]{\frac{-512}{729}} = \frac{-8}{9}$$

Q7

Answer :

(c) 9

$$\begin{array}{r|l} 2 & 648 \\ \hline 2 & 324 \\ \hline 2 & 162 \\ \hline 3 & 81 \\ \hline 3 & 27 \\ \hline 3 & 9 \\ \hline 3 & 3 \\ \hline & 1 \end{array}$$

$$648 = 2 \times 2 \times 2 \times 3 \times 3 \times 3 \times 3 = (2)^3 \times (3)^3 \times 3$$

Therefore, to get a perfect cube, we need to multiply 648 by 9, i.e. (3×3) .

Q8

Answer :

(a) 3

2	1536
2	768
2	384
2	192
2	96
2	48
2	24
2	12
2	6
3	1

Q9

Answer :

(c) $2\frac{197}{1000}$

$$\left(1\frac{3}{10}\right)^3 = \left(\frac{13}{10}\right)^3 = \frac{(13)^3}{(10)^3} = \frac{(13 \times 13 \times 13)}{(10 \times 10 \times 10)}$$

$$\left(1\frac{3}{10}\right)^3 = \frac{2197}{1000} = 2\frac{197}{1000}$$

$$\therefore \left(1\frac{3}{10}\right)^3 = 2\frac{197}{1000}$$

Q10

Answer :

(c) 0.512

$$(0.8)^3 = (0.8) \times (0.8) \times (0.8) = 0.512$$

$$\therefore (0.8)^3 = 0.512$$

***** END *****