Cubes and Cubes Roots Ex 4.2 Q5

Answer :

(i)
We have:

$$\frac{27}{64} = \frac{3\times3\times3}{8\times8\times8} = \frac{3^3}{8^3} = \left(\frac{3}{8}\right)^3$$

Therefore, $\frac{27}{64}$ is a cube of $\frac{3}{8}$.

(ii)
We have:

$$\frac{125}{128} = \frac{5\times5\times5}{2\times2\times2\times2\times2\times2\times2} = \frac{5^3}{2^3\times2^3\times2}$$

It is evident that 128 cannot be grouped into triples of equal factors; therefore, $\frac{125}{128}$ is not a cube of a rational number.

(iii)
We have:

$$0.001331 = \frac{1331}{1000000} = \frac{11\times11\times11}{2\times2\times2\times2\times2\times2\times5\times5\times5\times5\times5\times5} = \frac{11^3}{(2\times2\times5\times5)^3} = \frac{11^3}{100^3} = \left(\frac{11}{100}\right)^3$$

Therefore, 0.001331 is a cube of $\frac{11}{100}$.

(iv)
We have:

$$0.04 = \frac{4}{100} = \frac{2\times2}{2\times2\times5\times5}$$

It is evident that 4 and 100 could not be grouped in to triples of equal factors; therefore, 0.04 is not a cube of a rational number.

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