Cubes and Cubes Roots Ex 4.3 Q5

On factorising 1157625 into prime factors, we get:
$$1157625 = 3 \times 3 \times 3 \times 5 \times 5 \times 5 \times 7 \times 7 \times 7$$

On grouping the factors in triples of equal factors, we get:
$$1157625 = \{3 \times 3 \times 3\} \times \{5 \times 5 \times 5\} \times \{7 \times 7 \times 7\}$$

Now, taking one factor from each triple, we get:
$$\sqrt[3]{1157625} = 3 \times 5 \times 7 = 105$$

(xii)
Cube root by factors:

On factorising 33698267 into prime factors, we get:
$$33698267 = 17 \times 17 \times 17 \times 19 \times 19 \times 19$$

On grouping the factors in triples of equal factors, we get:
$$33698267 = \{17 \times 17 \times 17\} \times \{19 \times 19 \times 19\}$$

Now, taking one factor from each triple, we get:
$$\sqrt[3]{33698267} = 17 \times 19 = 323$$

Answer :

On factorising 3600 into prime factors, we get:
$3600 = 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 5 \times 5$

On grouping the factors in triples of equal factors, we get:
$3600 = \{2 \times 2 \times 2\} \times 2 \times 3 \times 3 \times 5 \times 5$

It is evident that the prime factors of 3600 cannot be grouped into triples of equal factors such that no factor is left over.
Therefore, 3600 is not a perfect cube.
However, if the number is multiplied by $(2 \times 2 \times 3 \times 5 = 60)$, the factors can be grouped into triples of equal factors such that no factor is left over.

Hence, the number 3600 should be multiplied by 60 to make it a perfect cube.

Also, the product is given as:

$3600 \times 60 = \{2 \times 2 \times 2\} \times 2 \times 3 \times 3 \times 5 \times 5 \times 60$
$\Rightarrow 216000 = \{2 \times 2 \times 2\} \times 2 \times 3 \times 3 \times 5 \times 5 \times (2 \times 2 \times 3 \times 5)$
$\Rightarrow 216000 = \{2 \times 2 \times 2\} \times \{2 \times 2 \times 2\} \times \{3 \times 3 \times 3\} \times \{5 \times 5 \times 5\}$

To get the cube root of the produce 216000, take one factor from each triple.

Cube root $= 2 \times 2 \times 3 \times 5 = 60$

Hence, the required numbers are 60 and 60.

Cubes and Cubes Roots Ex 4.3 Q6

Answer :

On factorising 210125 into prime factors, we get:
$$210125 = 5 \times 5 \times 5 \times 41 \times 41$$

On grouping the factors in triples of equal factors, we get:
$$210125 = \{5 \times 5 \times 5\} \times 41 \times 41$$

It is evident that the prime factors of 210125 cannot be grouped into triples of equal factors such that no factor is left over. Therefore, 210125 is not a perfect cube. However, if the number is multiplied by 41, the factors can be grouped into triples of equal factors such that no factor is left over.

Hence, the number 210125 should be multiplied by 41 to make it a perfect cube.

Also, the product is given as:

$$210125 \times 41 = \{5 \times 5 \times 5\} \times \{41 \times 41 \times 41\}$$
$$\Rightarrow 8615125 = \{5 \times 5 \times 5\} \times \{41 \times 41 \times 41\}$$

To get the cube root of the produce 8615125, take one factor from each triple. The cube root is
$$5 \times 41 = 205.$$

Hence, the required numbers are 41 and 205.

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