



### Cubes and Cubes Roots Ex 4.3 Q3

**Answer :**

(i)

We have:

$$\begin{array}{r} 130 \\ \underline{1} \\ 129 \\ \underline{7} \\ 122 \\ \underline{19} \\ 103 \\ \underline{37} \\ 66 \\ \underline{61} \\ 5 \end{array}$$

$\therefore$  The next number to be subtracted is 91, which is greater than 5.

$\therefore$  130 is not a perfect cube.

However, if we subtract 5 from 130, we will get 0 on performing successive subtraction and the number will become a perfect cube.

If we subtract 5 from 130, we get 125. Now, find the cube root using successive subtraction.

We have:

$$\begin{array}{r} 125 \\ \underline{1} \\ 124 \\ \underline{7} \\ 117 \\ \underline{19} \\ 98 \\ \underline{37} \\ 61 \\ \underline{61} \\ 0 \end{array}$$

$\therefore$  The subtraction is performed 5 times.

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

Thus, it is a perfect cube.

(ii)

We have:

$$\begin{array}{r} 345 \\ \underline{1} \\ 344 \\ \underline{7} \\ 337 \\ \underline{19} \\ 318 \\ \underline{37} \\ 281 \\ \underline{61} \\ 220 \\ \underline{91} \\ 129 \\ \underline{127} \\ 2 \end{array}$$

$\therefore$  The next number to be subtracted is 161, which is greater than 2.

$\therefore$  345 is not a perfect cube.

However, if we subtract 2 from 345, we will get 0 on performing successive subtraction and the number will become a perfect cube.

If we subtract 2 from 345, we get 343. Now, find the cube root using successive subtraction.

$$\begin{array}{r} 343 \\ \underline{1} \\ 342 \\ \underline{7} \\ 335 \\ \underline{19} \\ 316 \\ \underline{37} \\ 279 \\ \underline{61} \\ 218 \\ \underline{91} \\ 127 \\ \underline{127} \\ 0 \end{array}$$

$\therefore$  The subtraction is performed 7 times.

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

Thus, it is a perfect cube.

(iii)

We have:

$$\begin{array}{r} 792 \\ \underline{1} \\ 791 \\ \underline{7} \\ 784 \\ \underline{19} \\ 765 \\ \underline{37} \\ 728 \\ \underline{61} \\ 667 \\ \underline{91} \\ 576 \end{array}$$

$$\begin{array}{r} 127 \\ \underline{449} \\ 169 \\ \underline{280} \\ 217 \\ \underline{63} \end{array}$$

$\therefore$  The next number to be subtracted is 271, which is greater than 63.

$\therefore$  792 is not a perfect cube.

However, if we subtract 63 from 792, we will get 729 on performing successive subtraction and the number will become a perfect cube.

If we subtract 63 from 792, we get 729. Now, find the cube root using the successive subtraction.

We have:

$$\begin{array}{r}
 729 \\
 \underline{1} \\
 728 \\
 \underline{7} \\
 721 \\
 \underline{19} \\
 702 \\
 \underline{37} \\
 665 \\
 \underline{61} \\
 604 \\
 \underline{91} \\
 513 \\
 \underline{127} \\
 386 \\
 \underline{169} \\
 217 \\
 \underline{217} \\
 0
 \end{array}$$

$\therefore$  The subtraction is performed 9 times.

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

Thus, it is perfect cube.

\*\*\*\*\* END \*\*\*\*\*

