

11/5/21
C.V.

4(B)

$$1. \text{ i) } \sqrt[3]{64} = \sqrt[3]{2^3 \times 2^3} = \sqrt[3]{2^3} \times \sqrt[3]{2^3} = 2 \times 2 = 4$$

$$\begin{array}{r}
 2 \overline{) 64} \\
 \underline{2 \ 32} \\
 2 \overline{) 16} \\
 \underline{2 \ 8} \\
 2 \overline{) 8} \\
 \underline{2 \ 4} \\
 2 \overline{) 4} \\
 \underline{2 \ 2} \\
 2 \overline{) 2} \\
 \underline{2 \ 0} \\
 0
 \end{array}$$

$$\text{ii) } \sqrt[3]{343} = \sqrt[3]{7^3} = \sqrt[3]{7^3} = 7$$

$$\begin{array}{r}
 7 \overline{) 343} \\
 \underline{7 \ 49} \\
 7 \overline{) 7} \\
 \underline{7 \ 0} \\
 0
 \end{array}$$

$$\text{iii) } \sqrt[3]{729} = \sqrt[3]{9^3} = \sqrt[3]{9^3} = 9$$

$$\begin{array}{r}
 9 \overline{) 729} \\
 \underline{9 \ 81} \\
 9 \overline{) 9} \\
 \underline{9 \ 0} \\
 0
 \end{array}$$

$$\text{Ex.) } \sqrt[3]{1728} = \sqrt[3]{12^3} = 12$$

$$\begin{array}{r} 12 \overline{) 1728} \\ \underline{12 \ 144} \\ 12 \ 12 \\ \underline{ } \\ 0 \end{array}$$

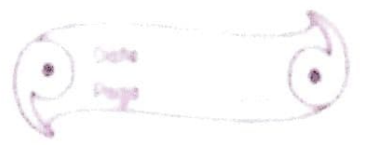
$$\text{v) } \sqrt[3]{9261} = \sqrt[3]{3^3 \times 7^3} = \sqrt[3]{3^3} \times \sqrt[3]{7^3} = 3 \times 7 = 21$$

$$\begin{array}{r} 3 \overline{) 9261} \\ \underline{3 \ 3087} \\ 3 \ 1029 \\ \underline{7 \ 343} \\ 7 \ 49 \\ \underline{7 \ 7} \\ 0 \end{array}$$

$$\text{Q. 12) } \sqrt[3]{\frac{125}{216}} = \frac{\sqrt[3]{5 \times 5 \times 5}}{\sqrt[3]{6 \times 6 \times 6}} = \frac{5}{6}$$

$$\begin{array}{r} 5 \overline{) 125} \\ \underline{5 \ 25} \\ 5 \ 5 \\ \underline{ } \\ 0 \end{array}$$

$$\begin{array}{r} 6 \overline{) 216} \\ \underline{6 \ 36} \\ 6 \ 6 \\ \underline{ } \\ 0 \end{array}$$



$$\text{iii) } \frac{125}{216} = \frac{343}{512}$$

$$\text{vii) } 3375 \times 512 = \sqrt[3]{15 \times 15 \times 15 \times 8 \times 8 \times 8} = 15 \times 8 = 120$$

$$= 1728000$$

$$\begin{array}{r} 15 \overline{) 1728000} \\ 15 \overline{) 115200} \\ 15 \overline{) 7680} \\ 8 \overline{) 512} \\ 8 \overline{) 64} \\ 8 \overline{) 8} \\ \hline 1 \end{array}$$

$$\text{3. iv) } \frac{27}{-125} = \sqrt[3]{-8} = -(\sqrt[3]{8})$$

$$= \sqrt[3]{\frac{-27}{125}} = \frac{\sqrt[3]{-27}}{\sqrt[3]{125}} = \frac{(-3)^3}{3^3} = -3$$

$$\text{viii) } -5832 = \sqrt[3]{(-18)^3} = -18$$

$$\begin{array}{r} 2 \overline{) 5832} \\ 2 \overline{) 2916} \\ 2 \overline{) 1458} \\ 3 \overline{) 729} \\ 3 \overline{) 243} \\ 3 \overline{) 81} \\ 3 \overline{) 27} \\ 3 \overline{) 9} \end{array} \quad \begin{array}{l} 2^3 \times 3^3 \times 3^3 \\ = 18^3 \end{array}$$

3
 3) $-2744000 = \sqrt[3]{-140^3} = -140$

| | |
|---|---|
| $\begin{array}{r} 5 \overline{) 2744000} \\ \underline{5} \\ 5 \overline{) 48,800} \\ \underline{5} \\ 4 \overline{) 21,952} \\ \underline{4} \\ 4 \overline{) 1372} \\ \underline{7} \\ 7 \overline{) 343} \\ \underline{7} \\ 7 \overline{) 49} \\ \underline{7} \\ 7 \overline{) 7} \\ \underline{7} \\ 1 \end{array}$ | $= 5^3 \times 7^3 \times 7^3$ $= 140^3$ |
|---|---|

4) 2.744

3
 $= \frac{\sqrt[3]{2744}}{1000} = \frac{2 \times 2 \times 2 \times 7 \times 7 \times 7}{10 \times 10 \times 10}$

| | |
|---|---------------------------------|
| $\begin{array}{r} 2 \overline{) 2744} \\ \underline{2} \\ 2 \overline{) 1372} \\ \underline{2} \\ 2 \overline{) 686} \\ \underline{7} \\ 7 \overline{) 343} \\ \underline{7} \\ 7 \overline{) 49} \\ \underline{7} \\ 7 \overline{) 7} \\ \underline{7} \\ 1 \end{array}$ | $= \frac{2^3 \times 7^3}{10^3}$ |
|---|---------------------------------|

$= \frac{2 \times 7}{10} = \frac{14}{10} = 1.4$

iii) ~~0.000027~~

v) $-15.625 = \frac{\sqrt[3]{-15625}}{1000}$

$$\begin{array}{r} 5 \overline{) 15625} \\ \underline{5} \\ 5 \overline{) 3125} \\ \underline{5} \\ 5 \overline{) 625} \\ \underline{5} \\ 5 \overline{) 125} \\ \underline{5} \\ 5 \overline{) 25} \\ \underline{5} \\ 5 \overline{) 5} \\ \underline{5} \\ 1 \end{array}$$

$$= \frac{5^3 \times 5^3}{10^3}$$

$$= \frac{(-5) \times 5}{10} = \frac{-25}{10} = -2.5$$

5. 26244

$$\begin{array}{r} 3 \overline{) 26244} \\ \underline{3} \\ 3 \overline{) 8748} \\ \underline{3} \\ 3 \overline{) 2916} \\ \underline{3} \\ 3 \overline{) 972} \\ \underline{3} \\ 3 \overline{) 324} \\ \underline{3} \\ 3 \overline{) 108} \\ \underline{3} \\ 3 \overline{) 36} \\ \underline{3} \\ 3 \overline{) 12} \\ \underline{3} \\ 2 \overline{) 4} \\ \underline{2} \\ 2 \overline{) 2} \\ \underline{2} \\ 1 \end{array}$$

$$= 3^3 \times 3^3 \times 2 \times 2$$

$$= 4$$

6. 30375

$$\begin{array}{r}
 3 \overline{) 30375} \\
 \underline{30} \\
 3 \overline{) 10125} \\
 \underline{9} \\
 3 \overline{) 125} \\
 \underline{9} \\
 3 \overline{) 375} \\
 \underline{30} \\
 5 \overline{) 75} \\
 \underline{50} \\
 5 \overline{) 25} \\
 \underline{20} \\
 5 \overline{) 5} \\
 \underline{5} \\
 1
 \end{array}$$

$= 3^3 \times (3 \times 3) \times 5^3$
 $= 3$

7. $700 \times 2 \times 49 \times 5$

$$\begin{array}{r}
 2 \overline{) 700} \\
 \underline{2} \\
 2 \overline{) 350} \\
 \underline{2} \\
 5 \overline{) 175} \\
 \underline{5} \\
 5 \overline{) 35} \\
 \underline{5} \\
 7 \overline{) 7} \\
 \underline{7} \\
 1
 \end{array}
 \quad
 \begin{array}{r}
 2 \overline{) 2} \\
 \underline{2} \\
 1
 \end{array}
 \quad
 \begin{array}{r}
 7 \overline{) 49} \\
 \underline{7} \\
 7 \overline{) 7} \\
 \underline{7} \\
 1
 \end{array}
 \quad
 \begin{array}{r}
 5 \overline{) 5} \\
 \underline{5} \\
 1
 \end{array}$$

$$\begin{aligned}
 &= 2 \times 2 \times 5 \times 5 \times 7 \times 2 \times 7 \times 7 \times 5 \\
 &= 2^2 \times 5^2 \times 7 \times 2 \times 7^2 \times 5 \\
 &= 2^3 \times 5^3 \times 7^3 = \sqrt[3]{2^3 \times 5^3 \times 7^3} \\
 &= 70
 \end{aligned}$$

$$\text{ii) } -216 \times 1728$$

$$\begin{array}{r} 2 \overline{) 216} \\ 2 \overline{) 18} \\ 3 \overline{) 9} \\ 3 \overline{) 3} \\ 1 \end{array}$$

$$\begin{array}{r} 2 \overline{) 1728} \\ 2 \overline{) 864} \\ 2 \overline{) 432} \\ 2 \overline{) 216} \\ 2 \overline{) 108} \\ 2 \overline{) 54} \\ 3 \overline{) 27} \\ 3 \overline{) 9} \\ 3 \overline{) 3} \\ 1 \end{array}$$

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

$$(2 \times 2 \times 2 \times 2 \times 2 \times 2)$$

$$(3 \times 3 \times 3)$$

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

$$= \sqrt{2^3 \times 2^3 \times 2 \times 2 \times 3^3 \times 3 \times 3}$$

$$= 2 \times 2 \times 2 \times 3 \times 3$$

$$= 72$$