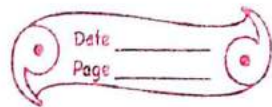


11/05/2024
H/W

MATHS

EX-4 (A)

CUBES & CUBE ROOTS



① (i) $7 = 7^3 = 7 \times 7 \times 7 = 343$

(ii) $11 = 11^3 = 11 \times 11 \times 11 = 1331$

(iii) $16 = 16^3 = 16 \times 16 \times 16 = 4096$

(iv) $23 = 23^3 = 23 \times 23 \times 23 = 12167$

(v) $31 = 31^3 = 31 \times 31 \times 31 = 29791$

(vi) $42 = 42^3 = 42 \times 42 \times 42 = 74088$

(vii) $54 = 54^3 = 54 \times 54 \times 54 = 157464$

② (i) $243 =$

Sol. $\rightarrow 3 \times 3 \times 3 \times 3 \times 3$

\therefore Triplet of number 3 is not formed.

$$\begin{array}{r} 3 \overline{) 243} \\ \underline{3} \\ 81 \\ \underline{3} \\ 27 \\ \underline{3} \\ 9 \\ \underline{3} \\ 0 \end{array}$$

$\therefore 243$ is not a perfect cube.

(ii) $588 =$

Sol. $\rightarrow 2 \times 2 \times 3 \times 7 \times 7$

\therefore There are no triplets of any nos.

$$\begin{array}{r} 2 \overline{) 588} \\ \underline{2} \\ 294 \\ \underline{3} \\ 147 \\ \underline{7} \\ 49 \\ \underline{7} \\ 0 \end{array}$$

$\therefore 588$ is not perfect cube.

(iii) $1331 =$
$$\begin{array}{r} 11 \overline{) 1331} \\ \underline{11} \\ 23 \\ \underline{22} \\ 11 \\ \underline{11} \\ 0 \end{array}$$

Sol. $\rightarrow 11 \times 11 \times 11 = 11^3$ product of triplets of equal factors.

$\therefore 1331$ is a perfect cube

(iv) $24000 =$
$$\begin{array}{r} 2 \overline{) 24000} \\ \underline{2} \\ 12000 \\ \underline{2} \\ 6000 \\ \underline{2} \\ 3000 \\ \underline{2} \\ 1500 \\ \underline{2} \\ 750 \\ \underline{3} \\ 375 \\ \underline{5} \\ 125 \\ \underline{5} \\ 25 \\ \underline{5} \\ 5 \end{array}$$

Sol. $\rightarrow 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 5 \times 5 \times 5$

\therefore Triplet of 3 is not formed.

$\therefore 24000$ is not a perfect cube.

(v) $1728 =$

Sol. $\rightarrow \frac{2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 \times 3}{2^3 \times 2^3 \times 3^3}$

$(2 \times 2) \times (2 \times 2) \times (2 \times 2) \times (3 \times 3) \times 3$
 $4 \times 4 \times 4 = (4)^3 \times (3)^3$

∴ Product of triplets of equal factors.

∴ 1728 is a perfect cube.

(vi) $1938 = 2 \times 3 \times 3 \times 323$ $\begin{array}{r} 23 \overline{) 1938} \\ \underline{3 969} \\ 323 \end{array}$
 ∴ Triplet of any
 not is not formed.

∴ 1938 is not a perfect cube.

(7) (i) $2.1 \Rightarrow (2.1)^3 = 2.1 \times 2.1 \times 2.1 = 9.261$

(ii) $0.4 \Rightarrow (0.4)^3 = 0.4 \times 0.4 \times 0.4 = 0.064$

(iii) $1.6 \Rightarrow (1.6)^3 = 1.6 \times 1.6 \times 1.6 = 4.096$

(iv) $2.5 \Rightarrow (2.5)^3 = 2.5 \times 2.5 \times 2.5 = 15.625$

(v) $0.12 \Rightarrow (0.12)^3 = 0.12 \times 0.12 \times 0.12 = 0.001728$

(vi) $0.02 \Rightarrow (0.02)^3 = 0.02 \times 0.02 \times 0.02 = 0.000008$

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

(8) (i) $\frac{3}{7} \Rightarrow \left[\frac{3}{7} \right]^3 = \frac{3 \times 3 \times 3}{7 \times 7 \times 7} = \frac{27}{343}$

(ii) $\frac{8}{9} \Rightarrow \left[\frac{8}{9} \right]^3 = \frac{8 \times 8 \times 8}{9 \times 9 \times 9} = \frac{512}{729}$

$$(iii) \frac{10}{13} \Rightarrow \left[\frac{10}{13} \right]^3 = \frac{10 \times 10 \times 10}{13 \times 13 \times 13} = \frac{1000}{2197}$$

$$(iv) \left[\frac{2}{7} \right]^3 = \left[\frac{9}{7} \right]^3 = \frac{9 \times 9 \times 9}{7 \times 7 \times 7} = \frac{729}{343} = 2 \frac{43}{343}$$

$$(v) \left[2 \frac{1}{2} \right]^3 = \left[\frac{5}{2} \right]^3 = \frac{5 \times 5 \times 5}{2 \times 2 \times 2} = \frac{125}{8} = 15 \frac{5}{8}$$

$$(5) (i) -3 \Rightarrow (-3)^3 = (-3) \times (-3) \times (-3) = -27$$

$$(ii) -7 \Rightarrow (-7)^3 = (-7) \times (-7) \times (-7) = -343$$

$$(iii) -12 \Rightarrow (-12)^3 = (-12) \times (-12) \times (-12) = -1728$$

$$(iv) -18 \Rightarrow (-18)^3 = (-18) \times (-18) \times (-18) = -5832$$

$$(v) -25 \Rightarrow (-25)^3 = (-25) \times (-25) \times (-25) = -15625$$

$$(vi) -30 \Rightarrow (-30)^3 = (-30) \times (-30) \times (-30) = -27000$$

$$(vii) -50 \Rightarrow (-50)^3 = (-50) \times (-50) \times (-50) = -125000$$