

1 sec contains  $10^6$  ms

(i)  $\lg n$

$\lg n$  means log base 2 logarithmic function

$$\Rightarrow n = a^x$$

or

$$\log_a n = x$$

So

$$\text{for } 1 \text{ sec} = 10^6 \text{ ms}$$

$$\lg_2 n = 10^6$$

$$\Rightarrow n = 2^{1 \times 10^6}$$

$$\begin{aligned} \text{for } 1 \text{ min} &= 60 \times 10^6 \\ &= 6 \times 10^7 \end{aligned}$$

$$\lg_2 n = 6 \times 10^7$$

$$\Rightarrow n = 2^{6 \times 10^7}$$

$$\begin{aligned} \text{for } 1 \text{ hour} &= 60 \times 60 \times 10^6 \\ &= 36 \times 10^8 \\ &= 3.6 \times 10^9 \end{aligned}$$

$$\lg_2 n = 3.6 \times 10^9$$

$$\Rightarrow n = 2^{3.6 \times 10^9}$$

(ii)  $\sqrt{n}$

(a) for 1 sec

$$\sqrt{n} = 10^6$$

taking square on b/sides

$$(\sqrt{n})^2 = (10^6)^2$$

$$\Rightarrow n = 10^{12}$$

(a) for 1 min

$$\sqrt{n} = 60 \times 10^6$$

taking sq on b/sides

$$(\sqrt{n})^2 = (60 \times 10^6)^2$$

$$= 3600 \times 10^{12}$$

$$\Rightarrow n = 3.6 \times 10^{15}$$



(iii)  $n$

(a) for 1 sec

$$\Rightarrow n = 10^6$$



(iv)  $n^2$

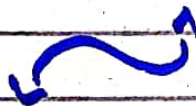
(a) for 1 sec

$$n^2 = 10^6$$

Taking sq. root on b/sides

$$\sqrt{n^2} = \sqrt{10^6}$$

$$\Rightarrow n = 10^3$$



(v)  $n^3$

(a) for 1 sec

$$n^3 = 10^6$$

taking cube root on b/sides

$$(n^3)^{1/3} = (10^6)^{1/3}$$

$$\Rightarrow n = 10^2$$

$$(vii) 2^n$$

(a) For 1 sec

$$2^n = 10^{6.6}$$

taking natural log on b/sides

$$\log 2^n = \log 10^6$$

$$n \log 2 = 6 \log 10$$

$$n(0.3) = 6$$

$$n = \frac{6}{0.3}$$

$$n = 19.13$$