

**CBSE Class –VIII Mathematics**  
**NCERT Solutions**  
**CHAPTER - 12**  
**Exponents and Powers (Ex. 12.2)**

---

**1. Express the following numbers in standard form:**

**(i) 0.00000000000085**

**(ii) 0.000000000000942**

**(iii) 6020000000000000**

**(iv) 0.00000000837**

**(v) 31860000000**

**Ans. (i) 0.00000000000085**

$$= 0.00000000000085 \times \frac{10^{12}}{10^{12}} = 8.5 \times 10^{-12}$$

**(ii) 0.000000000000942**

$$= 0.000000000000942 \times \frac{10^{12}}{10^{12}} = 9.42 \times 10^{-12}$$

**(iii) 6020000000000000**

$$= 6020000000000000 \times \frac{10^{15}}{10^{15}} = 6.02 \times 10^{15}$$

**(iv) 0.00000000837**

$$= 0.00000000837 \times \frac{10^9}{10^9} = 8.37 \times 10^{-9}$$

**(v) 31860000000**

$$= 31860000000 \times \frac{10^{10}}{10^{10}} = 3.186 \times 10^{10}$$

---

**2. Express the following numbers in usual form:**

(i)  $3.02 \times 10^{-6}$

(ii)  $4.5 \times 10^4$

(iii)  $3 \times 10^{-8}$

(iv)  $1.0001 \times 10^9$

(v)  $5.8 \times 10^{12}$

(vi)  $3.61492 \times 10^6$

**Ans. (i)**

(ii)  $4.5 \times 10^4 = 4.5 \times 10000 = 45000$

(iii)  $3 \times 10^{-8} = \frac{3}{10^8} = 0.00000003$

(iv)  $1.0001 \times 10^9 = 1000100000$

(v)  $5.8 \times 10^{12} = 5.8 \times 1000000000000$

$= 5800000000000$

(vi)  $3.61492 \times 10^6 = 3.61492 \times 1000000$

$= 3614920$

---

**3. Express the number appearing in the following statements in standard form:**

(i) 1 micron is equal to  $\frac{1}{1000000}$  m.

**(ii) Charge of an electron is 0.000,000,000,000,000,16 coulomb.**

**(iii) Size of a bacteria is 0.0000005 m.**

**(iv) Size of a plant cell is**

**0.00001275 m.**

**(v) Thickness if a thick paper is 0.07 mm.**

**Ans. (i) 1 micron**

$$= \frac{1}{1000000} = \frac{1}{10^6} = 1 \times 10^{-6} \text{ m}$$

**(ii) Charge of an electron is**

0.00000000000000000016 coulombs.

$$= 0.00000000000000000016 \times \frac{10^{19}}{10^{19}}$$

$$= 1.6 \times 10^{-19} \text{ coulomb}$$

**(iii) Size of bacteria = 0.0000005**

$$\frac{5}{10000000} = \frac{5}{10^7} = 5 \times 10^{-7} \text{ m}$$

**(iv) Size of a plant cell is 0.00001275 m**

$$= 0.00001275 \times \frac{10^5}{10^5} = 1.275 \times 10^{-5} \text{ m}$$

**(v) Thickness of a thick paper = 0.07 mm**

$$= \frac{7}{100} \text{ mm} = \frac{7}{10^2} = 7 \times 10^{-2} \text{ mm}$$

---

**4. In a stack there are 5 books each of thickness 20 mm and 5 paper sheets each of thickness 0.016 mm. What is the total thickness of the stack?**

**Ans.** Thickness of one book = 20 mm

Thickness of 5 books =  $20 \times 5 = 100$  mm

Thickness of one paper = 0.016 mm

Thickness of 5 papers =  $0.016 \times 5$

= 0.08 mm

Total thickness of a stack =  $100 + 0.08$

= 100.08 mm

$$= 100.08 \times \frac{10^2}{10^2}$$

$$= 1.0008 \times 10^2 \text{ mm}$$