

NCERT solutions for class-8 maths chapter-12 exponents and powers Ex-12.2

Q1. Express the following numbers in standard form:

- (i)o.oooooooooo85
- (ii) 0.00000000000942
- (iii) 6020000000000000
- (iv) 0.00000000837
- (v) 31860000000

Ans. (i) 0.0000000000085

$$= 0.0000000000085 \times \frac{10^{12}}{10^{12}}$$

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

(ii) 0.00000000000942

$$= 0.00000000000942 \times \frac{10^{12}}{10^{12}}$$

$$=9.42\times10^{-12}$$

(iii) 6020000000000000

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

$$=6.02\times10^{15}$$

(iv) 0.00000000837

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

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

(v)
$$31860000000 = 318600000000 \times \frac{10^{10}}{10^{10}} =$$

$$3.186 \times 10^{10}$$

Q2. Express the following numbers in usual form:

Ans. (i)
$$3.02 \times 10^{-6} = \frac{3.02}{10^6} = 0.00000302$$

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

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

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

- **Q3.** 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 0.000,000,000,000,000,000,16 coulomb.

(iv) Size of a plant cell is

0.00001275 m.

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

Ans. (i) 1 micron

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

(ii)Charge of an electron is

0.000000000000000016 coulombs.

= 1.6×10⁻¹⁹ coulomb

(iii) Size of bacteria = 0.0000005

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

(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

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

Q4. 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 = $20 \times 5 = 100 \text{ mm}$

Thickness of one paper = $0.016 \, \mathrm{mm}$

Thickness of 5 papers = 0.016×5

= 0.08 mm

Total thickness of a stack = 100 + 0.08

=100.08 mm

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

$$=1.0008\times10^{2}$$
 mm

******* END ********