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

Q1. Express the following numbers in standard form:

(i)0.0000000000085

(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

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

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

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

3.186×10^{10}

Q2. Express the following numbers in usual form:

(i) 3.02×10^{-6}

(ii) 4.5×10^{4}

(iii) 3×10^{-8}

(iv) 1.0001×10^{9}

(v) 5.8×10^{12}

(vi) 3.61492×10^{6}

Ans. (i) $3.02\times10^{-6} = \frac{3.02}{10^{6}} = 0.00000302$

(ii) $4.5\times10^{4} = 4.5 \times 10000 = 45000$

(iii) $3\times10^{-8} = \frac{3}{10^{8}} = 0.00000003$

(iv) $1.0001\times10^{9} = 1000100000$

(v) $5.8\times10^{12} = 5.8 \times 1000000000000$

$= 5800000000000$

(vi) $3.61492\times10^{6} = 3.61492 \times 1000000$

$= 3614920$

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

$$= \frac{1}{1000000} = \frac{1}{10^6} = 1\times10^{-6}\text{ m}$$

(ii) Charge of an electron is

0.00000000000000000016 coulombs.

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

$$= 1.6\times10^{-19}\text{ coulomb}$$

(iii) Size of bacteria = 0.0000005

$$= \frac{5}{10000000} = \frac{5}{10^7} = 5\times10^{-7}\text{ m}$$

(iv) Size of a plant cell is 0.00001275 m

$$= 0.00001275 \times \frac{10^5}{10^5} = 1.275\times10^{-5}\text{ m}$$

(v) Thickness of a thick paper = 0.07 mm

$$= \frac{7}{100}\text{ mm} = \frac{7}{10^2} = 7\times10^{-2}\text{ mm}$$

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 × 5 = 100 mm

Thickness of one paper = 0.016 mm

Thickness of 5 papers = 0.016 × 5

= 0.08 mm

Total thickness of a stack = 100 + 0.08

=100.08 mm

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

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

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