EXERCISE # 2.1

Q#1: Express the following numbers on scientific notation:

(i)   **2000000**

$$= 2000000$$
$$\boxed{= 2 \times 10^6}$$

(ii)   **48900**

$$= 48900$$
$$\boxed{= 4.89 \times 10^4}$$

(iii) **0.0042**

$$= 0.0042$$
$$\boxed{= 4.2 \times 10^{-3}}$$

(iv) **0.0000009**

$$= 0.0000009$$
$$\boxed{= 9 \times 10^{-7}}$$

(v) 73×10^3

$$= 73 \times 10^3$$
$$= 7.3 \times 10^1 \times 10^3$$
$$= 7.3 \times 10^{3+1}$$
$$\boxed{= 7.3 \times 10^4}$$

(vi) 0.65×10^2

$$= 0.65 \times 10^2$$
$$= 6.5 \times 10^{-1} \times 10^2$$
$$= 6.5 \times 10^{-1+2}$$
$$\boxed{= 6.5 \times 10^1}$$

Q#2: Express the following numbers in ordinary notation:

(i) 8.04×10^2

$$= 8.04 \times 10^2$$

$$\boxed{= 804}$$

(ii) 3×10^5

$$= 3 \times 10^5$$

$$\boxed{= 300000}$$

(iii) 1.5×10^{-2}

$$= 1.5 \times 10^{-2}$$

$$\boxed{= 0.015}$$

(iv) 1.77×10^7

$$= 1.77 \times 10^7$$

$$\boxed{= 17700000}$$

(v) 5.5×10^{-6}

$$= 5.5 \times 10^{-6}$$

$$\boxed{= 0.0000055}$$

(v) 4×10^{-5}

$$= 4 \times 10^{-5}$$

$$\boxed{= 0.00004}$$

Q#3: **The speed of light is approximately 3×10^8 meters per second. Express it in standard form.**

Solution:

$$\text{Speed of light } = 3 \times 10^8 \text{ m/s}$$

$$\boxed{= 300,000,000 \text{ m/s}}$$

Q#4: **The circumference of the Earth at the equator is about 40075000 meters. Express this number in scientific notation.**

Solution:

$$\text{Circumference of the Earth at the equator} = 40075000 \text{ m}$$

$$\boxed{= 4.0075 \times 10^7 \text{m}}$$

Q#5: The diameter of Mars is 6.7779×10^3 km. Express this number in standard form.

Solution:

Diameter of Mars $= 6.7779 \times 10^3$ km

$$\boxed{= 6777.9 \text{ km}}$$

Q#6: The diameter of Earth is about 1.2756×10^4 km. Express this number in standard form.

Solution:

Diameter of Earth $= 1.2756 \times 10^4$ km

$$\boxed{= 12756 \text{ km}}$$