Unit No. 2

Logarithms

Exercise No. 2.1

Question No. 1

Express the following numbers in scientific notation:

(i) 2000000

Solution:

$= 2 \times 10^{6}$

(ii) 48900

Solution:

$= 4.89 \times 10^{4}$

(iii) 0.0042

Solution:

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

(iv) 0.0000009

Solution:

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

(v) 73×10^{3}

Solution:

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

$= 7.3 \times 10^{4}$

(vi) 0.65×10^{2}

Solution:

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

$= 6.5 \times 10^{1}$

Question No. 2

Express the following numbers in ordinary notation:

(i). 8.04×10^2

Solution:

$$= \frac{804}{100} \times 10^2$$

$$= \frac{804}{10^2} \times 10^2$$

$$= 804$$

(ii). 3×10^5

Solution:

$$= 3 \times 100000$$

$$= 300000$$

(iii) 1.5×10^{-2}

Solution:

$$= \frac{15}{10} \times \frac{1}{100}$$

$$= \frac{15}{1000}$$

$$= 0.015$$

(iv). 1.77×10^7

Solution:

$$= \frac{177}{100} \times 10000000$$

$$= 177 \times 100000$$

$$= 17700000$$

(v). 5.5×10^{-6}

Solution:

$$= \frac{55}{10} \times \frac{1}{1000000}$$

$$= \frac{55}{10000000}$$

$$= 0.0000055$$

(vi). 4×10^{-5}

Solution:

$= 4 \times \frac{1}{100000}$

$= 0.00004$

Question No. 3

The speed of light is approximately 3×10^8 metres per second. Express it in standard form.

Solution:

3×10^8 m/sec

$= 3 \times 100000000$ m/sec

$= 300,000,000$ m/sec

Question No. 4

The circumference of the Earth at the equator is about 40,075,000 meters. Express this number in scientific notation.

Solution:

40,075,000 m

$= 4.0075 \times 10^7$m

Question No. 5

The diameter of Mars is 6.779×10^3 km. Express this number in standard form.

Solution:

6.779×10^3 km

$= \frac{6779}{1000} \times 1000$ km

$= 6779$ km

Question No. 6

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

Solution:

1.2756×10^4 km

$= \frac{12756}{10000} \times 10000$ km

$= 12756$ km