

### Exercise 3.1

**Q1. Express each of the following numbers in scientific notation.**

i) 5700

**Sol:**  $5700 = 5.7 \times 10^3$  (move decimal point three places to left)

ii) 49,800,000

**Sol:**  $49,800,000 = 4.98 \times 10^7$  (move decimal point seven places to left)

iii) 96,000,000

**Sol:**  $96,000,000 = 9.6 \times 10^7$  (move decimal point seven places to left)

iv) 416.9

**Sol:**  $416.9 = 4.169 \times 10^2$  (move decimal point two places to left)

v) 83,000

**Sol:**  $83,000 = 8.3 \times 10^4$  (move decimal point four places to left)

vi) 0.00643

**Sol:**  $0.00643 = 6.43 \times 10^{-3}$  (move decimal point three places to right)

vii) 0.0074

**Sol:**  $0.0074 = 7.4 \times 10^{-3}$  (move decimal point three places to right)

viii) 60,000,000

**Sol:**  $60,000,000 = 6.0 \times 10^7$  (move decimal point seven places to left)

ix) 0.00000000395

**Sol:**  $0.00000000395 = 3.95 \times 10^{-9}$  (move decimal point nine places to right)

$$\text{x)} \quad \frac{275,000}{0.0025}$$

$$\text{Sol:} \quad \frac{275,000}{0.0025}$$

$$= \frac{2.75 \times 10^5 \quad (\text{move decimal point five places to left})}{2.5 \times 10^{-3} \quad (\text{move decimal point three places to right})}$$

**Q2. Express the following numbers in ordinary notation.**

$$\text{i)} \quad 6 \times 10^{-4}$$

$$\text{Sol:} \quad 6 \times 10^{-4} = 0.0006 \quad (\text{move decimal point four places to left})$$

$$\text{ii)} \quad 5.06 \times 10^{10}$$

$$\text{Sol:} \quad 5.06 \times 10^{10} = 50,600,000,000$$

(move decimal point ten places to right)

$$\text{iii)} \quad 9.018 \times 10^{-6}$$

$$\text{Sol:} \quad 9.018 \times 10^{-6} = 0.000009018 \quad (\text{move decimal point six places to left})$$

$$\text{iv)} \quad 7.865 \times 10^8$$

$$\text{Sol:} \quad 7.865 \times 10^8 = 786,500,000 \quad (\text{move decimal point eight places to right})$$