

# **MATHEMATICS**

**Class-7th**

**Chapter-13**

*Exponents  
and  
Powers*

**Exercise-13.3**

By:-A.K.Jha

Class - VII Mathematics  
Ch - 13 Exponents and Powers.

Ex - 13.3

Q.1. Numbers in the expanded form.

(i) 279404

$$= 2 \times 1,00,000 + 7 \times 10,000 + 9 \times 1,000 + 4 \times 100 + 0 \times 10 + 4 \times 1$$

Using powers of 10; in the exponential form it can be expressed as;

$$279404 = 2 \times 10^5 + 7 \times 10^4 + 9 \times 10^3 + 4 \times 10^2 + 0 \times 10^1 + 4 \times 10^0$$

(ii) 3006194

$$= 3 \times 1,000,000 + 0 \times 100,000 + 0 \times 10,000 + 6 \times 1,000 + 1 \times 100 + 9 \times 10 + 4 \times 1$$

$$= 3 \times 10^6 + 0 \times 10^5 + 0 \times 10^4 + 6 \times 10^3 + 1 \times 10^2 + 9 \times 10^1 + 4 \times 10^0$$

(iii) 2806196

$$= 2 \times 1,000,000 + 8 \times 100,000 + 0 \times 10,000 + 6 \times 1,000 + 1 \times 100 + 9 \times 10 + 6 \times 1$$

$$= 2 \times 10^6 + 8 \times 10^5 + 0 \times 10^4 + 6 \times 10^3 + 1 \times 10^2 + 9 \times 10^1 + 6 \times 10^0$$

$$(iv) \underline{120719}$$

$$= 1 \times 100000 + 2 \times 10000 + 0 \times 1000 + 7 \times 100 + 1 \times 10 + 9 \times 1$$

Using powers of 10, in the exponential form; it can be expressed as:

$$= 1 \times 10^5 + 2 \times 10^4 + 0 \times 10^3 + 7 \times 10^2 + 1 \times 10^1 + 9 \times 10^0 \checkmark$$

$$(v) \underline{20068}$$

$$= 2 \times 10000 + 0 \times 1000 + 0 \times 100 + 6 \times 10 + 8 \times 1$$

$$= 2 \times 10^4 + 0 \times 10^3 + 0 \times 10^2 + 6 \times 10^1 + 8 \times 10^0$$

expanded form in the exponential form.

Q.2. Numbers from expanded form:-

$$(a) 8 \times 10^4 + 6 \times 10^3 + 0 \times 10^2 + 4 \times 10^1 + 5 \times 10^0$$

$$= 8 \times 10000 + 6 \times 1000 + 0 \times 100 + 4 \times 10 + 5 \times 1$$

$$= 80,000 + 6000 + 0 + 40 + 5$$

$$= 86,045 \checkmark$$

$$(b) 4 \times 10^5 + 5 \times 10^3 + 3 \times 10^2 + 2 \times 10^0$$

$$= 4 \times 100000 + 5 \times 1000 + 3 \times 100 + 2 \times 1$$

$$= 400000 + 5000 + 300 + 2$$

$$= 405302 \checkmark$$

$$\begin{aligned}
 \text{(c)} \quad & 3 \times 10^4 + 7 \times 10^2 + 5 \times 10^0 \\
 & = 3 \times 10000 + 7 \times 100 + 5 \times 1 \\
 & = 30000 + 700 + 5 \\
 & = 30705 \checkmark
 \end{aligned}$$

$$\begin{aligned}
 \text{(d)} \quad & 9 \times 10^5 + 2 \times 10^2 + 3 \times 10^1 \\
 & = 9 \times 100000 + 2 \times 100 + 3 \times 10 \\
 & = 900000 + 200 + 30 \\
 & = 900230 \checkmark
 \end{aligned}$$

Q.3. Numbers in standard form:-

$$\begin{aligned}
 \text{(i)} \quad & 5,00,00,000 \\
 & = 5 \times 100000000 \\
 & = 5.0 \times 10^7 \checkmark
 \end{aligned}$$

$$\begin{aligned}
 \text{(ii)} \quad & 70,00,000 \\
 & = 7 \times 10000000 \\
 & = 7.0 \times 10^6 \checkmark
 \end{aligned}$$

$$\begin{aligned}
 \text{(iii)} \quad & 3,18,65,00,000 \\
 & = 31865 \times 100000 \\
 & = 31865 \times 10^5 \\
 & = 3.1865 \times 10^4 \times 10^5 \\
 & = 3.1865 \times 10^9 \checkmark
 \end{aligned}$$