

# NCERT Solutions For Class 7 Maths Exponents and Powers Exercise 13.3

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Question 1:
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Write the following numbers in the expanded forms:

279404, 3006194, 2806196, 120719, 20068

# Answer:

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

$$3006194 = 3 \times 10^6 + 0 \times 10^5 + 0 \times 10^4 + 6 \times 10^3 + 1 \times 10^2 + 9 \times 10^1 + 4 \times 10^0$$

$$2806196 = 2 \times 10^{6} + 8 \times 10^{5} + 0 \times 10^{4} + 6 \times 10^{3} + 1 \times 10^{2} + 9 \times 10^{1} + 6 \times 10^{0}$$

$$120719 = 1 \times 10^{5} + 2 \times 10^{4} + 0 \times 10^{3} + 7 \times 10^{2} + 1 \times 10^{1} + 9 \times 10^{0}$$

$$20068 = 2 \times 10^4 + 0 \times 10^3 + 0 \times 10^2 + 6 \times 10^1 + 8 \times 10^0$$

### Question 2:

Find the number from each of the following expanded forms:

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

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

(c) 
$$3 \times 10^4 + 7 \times 10^2 + 5 \times 10^0$$

(d) 
$$9 \times 10^5 + 2 \times 10^2 + 3 \times 10^1$$

#### Answer

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

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

(c) 
$$3 \times 10^4 + 7 \times 10^2 + 5 \times 10^0$$

(d) 
$$9 \times 10^5 + 2 \times 10^2 + 3 \times 10^1$$

= 900230

# Question 3:

Express the following numbers in standard form:

- (i) 5, 00, 00, 000 (ii) 70, 00, 000
- (iii) 3, 18, 65, 00, 000 (iv) 3, 90, 878
- (v) 39087.8 (vi) 3908.78

# Answer:

- (i)  $500000000 = 5 \times 10^7$
- (ii)  $7000000 = 7 \times 10^6$

- (iii)  $3186500000 = 3.1865 \times 10^9$
- (iv)  $390878 = 3.90878 \times 10^5$
- (v)  $39087.8 = 3.90878 \times 10^4$
- (vi)  $3908.78 = 3.90878 \times 10^3$

#### Question 4:

Express the number appearing in the following statements in standard form.

- (a) The distance between Earth and Moon is 384, 000, 000 m.
- (b) Speed of light in vacuum is 300, 000, 000 m/s.
- (c) Diameter of the Earth is 1, 27, 56, 000 m.
- (d) Diameter of the Sun is 1, 400, 000, 000 m.
- (e) In a galaxy there are on an average 100, 000, 000, 000 stars.
- (f) The universe is estimated to be about 12, 000, 000, 000 years old.
- (g) The distance of the Sun from the centre of the Milky Way Galaxy is estimated to be  $300,\,000,\,000,\,000,\,000,\,000,\,000$  m.
- (h) 60, 230, 000, 000, 000, 000, 000, 000 molecules are contained in a drop of water weighing 1.8 gm.
- (i) The earth has 1, 353, 000, 000 cubic km of sea water.
- (j) The population of India was about 1, 027, 000, 000 in March, 2001.

# Answer:

- (a)  $3.84 \times 10^8$  m
- (b)  $3 \times 10^8 \text{ m/s}$
- (c)  $1.2756 \times 10^7$  m
- (d)  $1.4 \times 10^9$  m
- (e) 1 × 10<sup>11</sup> stars
- (f)  $1.2 \times 10^{10}$  years
- (g)  $3 \times 10^{20}$  m
- (h)  $6.023 \times 10^{22}$
- (i)  $1.353 \times 10^9$  cubic km
- (j)  $1.027 \times 10^9$

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