NCERT Solutions For Class 7 Maths Exponents and Powers Exercise 13.3

Question 1:

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

$= 86045$

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

$= 405302$

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

$= 30705$

(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) $50000000 = 5 \times 10^7$

(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) 3.84×10^8 m

(b) 3×10^8 m/s

(c) 1.2756×10^7 m

(d) 1.4×10^9 m

(e) 1×10^{11} stars

(f) 1.2×10^{10} years

(g) 3×10^{20} m

(h) 6.023×10^{22}

(i) 1.353×10^9 cubic km

(j) 1.027×10^9

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