



## MATHS

### NCERT - NCERT Mathematics(HINGLISH)

#### EXPONENTS AND POWERS

##### Exercise 13.2

1. Using laws of exponents, simplify and write the answer in exponential

form : (i)  $3^2 \times 3^4 \times 3^8$  (ii)  $\frac{6^{15}}{6^{10}}$



Watch Video Solution

2. Say true or false and justify your answer : (i)  $10 \times 10^{11} = 100^{11}$  (ii)  $2^3$  If

$5^2$  (iii)  $2^3 \times 3^2 = 6^5$



Watch Video Solution

3. Simplify and express each of the following in exponential form:

(i)  $\frac{2^3 \times 3^4 \times 4}{3 \times 32}$  (ii)  $(5^2)^3 \times 5^4 5^7$



[Watch Video Solution](#)

4. Simplify: (i)  $\frac{(2^5) 2 \times 7^3}{8^3 \times 7}$  (ii)  $\frac{25 \times 5^2 \times t^8}{10^3 \times t^4}$



[Watch Video Solution](#)

5. Express each of the following as a product of prime factors only in exponential form: (i)  $108 \times 192$  (ii) 1270 (iii)  $729 \times 64$  (iv) 768



[Watch Video Solution](#)

Solved Examples

1. Write exponential form for  $8 \times 8 \times 8 \times 8$  taking base as 2.

A.  $2^{12}$

B.  $2^6$

C.  $2^8$

D.  $2^{10}$

**Answer:** A



[Watch Video Solution](#)

2. Simplify and write the answer in the exponential form.

(i)  $\left(\frac{3^7}{3^2}\right) \times 3^5$

(ii)  $2^3 \times 2^2 \times 5^5$

(iii)  $(6^2 \times 6^4) \div 6^3$

(iv)  $[(2)^3 \times 3^6] \times 5^6$



[Watch Video Solution](#)

3. Simplify : (i)  $\frac{12^4 + 9^3 \times 4}{6^3 \times 8^2 \times 27}$  (ii)  $2^3 \times a^3 \times 5a^4$

 [Watch Video Solution](#)

4. Express the following numbers in the standard form:

(i) 5985.3 (ii) 65, 950 (iii) 3, 430, 000 (iv) 70, 040, 000, 000

 [Watch Video Solution](#)

5. Expand :

(i)  $\left(\frac{3}{5}\right)^4$  (ii)  $\left(\frac{4}{7}\right)^5$

 [Watch Video Solution](#)

6. Example (a): Can you tell which one is greater  $(5^2) \times 3$  or  $(5^2)^5$  ?

Example (b): Express the following terms in the exponential form :

(i)  $(2 \times 3)^5$

(ii)  $(2a)^4$

(iii)  $(-4m)^3$



[Watch Video Solution](#)

7. Can you tell which one is greater

$(5^2) \times 3$  or  $(5^2) \times 63$ ?



[Watch Video Solution](#)

8. Work out

$(1)^5$ ,  $(-1)^3$ ,  $(-1)^4$ ,  $(-10)^3$ ,  $(-5)^4$



[Watch Video Solution](#)

9. Express the following numbers as a product of powers of prime factors:

(i) 72

(ii) 432

(iii) 1000

(iv) 16000



Watch Video Solution

10. Expand  $a^3b^2$ ,  $a^2b^3$ ,  $b^2a^3$ ,  $b^3a^2$  Are they all same ?



Watch Video Solution

11. which one is greater  $8^2$  or  $2^8$  ?



Watch Video Solution

12. Which one is greater  $2^3$  or  $3^2$  ?



Watch Video Solution

13. Express 256 as a power 2.

A.  $2^4$

B.  $2^6$

C.  $2^8$

D.  $2^6$

**Answer:** *C*



**Watch Video Solution**

### Exercise 13 1

1. Identify the greater number, wherever possible, in each of the following

? (i)  $4^3$  or  $3^4$  (ii)  $5^3$  or  $3^5$  (iii)  $2^8$  or  $8^2$  (iv)  $100^2$  or  $2^{100}$



**Watch Video Solution**

2. Express each of the following as product of powers of their prime factors:

(i) 648

(ii) 405

(iii) 540

(iv) 3,600



Watch Video Solution

3. Simplify : (i)  $2 \times 10^3$  (ii)  $7^2 \times 2^2$  (iii)  $2^3 \times 5$  (iv)  $3 \times 4^4$



Watch Video Solution

4. Simplify :

(i)  $(-4)^3$  (ii)  $(-3) \times (-2)^3$  (iii)  $(-3)^2 \times (-5)^2$  (iv)  
 $(-2)^3 \times (-10)^3$



Watch Video Solution

5. Find the value of :

(i)  $2^6$  (ii)  $9^3$  (iii)  $11^2$  (iv)  $5^4$



Watch Video Solution



6. Express the following in exponential form :

(i)  $6 \times 6 \times 6 \times 6$  (ii)  $t \times t$  (iii)  $b \times b \times b \times b$

 [Watch Video Solution](#)

7. Express each of the following numbers using exponential notation:(i)

512      (ii) 343      (iii) 729      (iv) 3125

 [Watch Video Solution](#)

8. Compare the following numbers :

(i)  $2.7 \times 10^{12}$ ,  $1.5 \times 10^8$  (ii)  $4 \times 10^{14}$ ,  $3 \times 10^{17}$

 [Watch Video Solution](#)

1. Find the number from each of the following expanded forms : (a)

$$8 \times 10^4 + 6 \times 10^3 + 0 \times 10^2 + 4 \times 10^1 + 5 \times 10^0 \quad (\text{b})$$

$$4 \times 10^5 + 5 \times 10^3 + 3 \times 10^2 + 2 \times 10^0 \quad (\text{c}) \quad 3 \times 10^4 + 7 \times 10^2 + 5 \times 10^0$$



[Watch Video Solution](#)

2. 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



[Watch Video Solution](#)

3. Write the following numbers in the expanded forms: 279404, 3006194,

2806196, 120719, 20068



[Watch Video Solution](#)

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 12,756,000 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 m.

(h) 60,230,000,000,000,000,000 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.



[Watch Video Solution](#)