

Board – ICSE

Class – 7<sup>th</sup>

Topic – Exponents

1. Find the value of

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

2. Identify the greater number

(i)  $4^3$  or  $3^4$

(ii)  $5^3$  or  $3^5$

(iii)  $2^8$  or  $8^2$

(iv)  $100^2$  or  $2^{100}$

(v)  $2^{10}$  or  $10^2$

3. Simplify:

(i)  $2 \times 10^3$

(ii)  $7^2 \times 2^2$

(iii)  $2^3 \times 5$

(iv)  $3^2 \times 10^4$

(v)  $(-3)^2 \times (-5)^2$

(vi)  $(-2)^3 \times (-10)^3$

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

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

(vii)  $2^0 \times 3^0 \times 4^0$

(ii)  $[(5^2)^3 \times 5^4] \div 5^7$

(viii)  $(3^0 + 2^0) \times 5^0$

(iii)  $25^4 \div 5^3$

(ix)  $\frac{2^8 \times a^5}{4^3 \times a^3}$

(iv)  $\frac{3 \times 7^2 \times 11^8}{21 \times 11^3}$

(x)  $\left(\frac{a^5}{a^3}\right) \times a^8$

(v)  $\frac{3^7}{3^4 \times 3^3}$

(xi)  $\frac{4^5 \times a^8 b^3}{4^5 \times a^5 b^2}$

(vi)  $2^0 + 3^0 + 4^0$

(xii)  $(2^3 \times 2)^2$

5. Simplify:

(i)  $\frac{(2^5)^7 \times 7^3}{8^3 \times 7}$

(ii)  $\frac{25 \times 5^2 \times t^8}{10^3 \times t^4}$

$$(iii) \frac{3^5 \times 10^5 \times 25}{5^7 \times 6^5}$$

6. Express the following numbers using exponential notation:

(i) 512

(ii) 343

(iii) 729

(iv) 3125

7. If  $a = 2$  and  $b = 3$ , find the value of:

(i)  $(a + b)^2$

(ii)  $(b - a)^3$

(iii)  $(a \times b)^a$

(iv)  $(a \times b)^b$

## ANSWER

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|---------------------|-----------------------|-------------------|------------------------|
| 1. (i) 64           | (ii) 729              | (iii) 121         | (iv) 625               |
| 2. (i) $4^3 < 3^4$  | (ii) $5^3 < 3^5$      | (iii) $2^8 > 8^2$ | (iv) $100^2 < 2^{100}$ |
| (v) $2^{10} > 10^2$ |                       |                   |                        |
| 3. (i) 2000         | (ii) 196              | (iii) 40          |                        |
| (iv) 90000          | (v) 225               | (vi) 8000         |                        |
| 4. (i) $3^3$        | (ii) $5^3$            | (iii) $5^5$       | (iv) $7 \times 11^5$   |
| (v) 1               | (vi) 3                | (vii) 1           | (viii) 2               |
| (ix) $(2a)^2$       | (x) $a^{10}$          | (xi) $a^3b$       | (xii) $2^8$            |
| 5. (i) 98           | (ii) $\frac{5t^4}{8}$ | (iii) 1           |                        |
| 6. (i) $2^9$        | (ii) $7^3$            | (iii) $3^6$       | (iv) $5^5$             |
| 7. (i) 25           | (ii) 1                | (iii) 36          | (iv) 216               |