

Subject: - Mathematics

PRACTICE PAPER

CBSE-7th

Topic: - Exponents & Powers

1. Find the value of each of the following: -

a) $(-3)^4$

b) $2^2 \times 5^3$

Ans. $a = 81, b = 500$

2. Simplify: -

a) $(-2)^5 \times (-10)^2$

b) $\left(\frac{3}{4}\right)^2$

Ans. $a = -3200, b = \frac{9}{16}$

3. Identify the greater no. in each of the following: -

a) 3^5 or 5^3

Ans. 3^5

4. Express each of the following in exponential form.

a) $\frac{4}{3} \times \frac{4}{3} \times \frac{4}{3} \times \frac{4}{3} \times \frac{4}{3}$

b) $\left(-\frac{2}{3}\right) \times \left(-\frac{2}{3}\right) \times x \times x \times x$

c) 729

Ans. $a = \left(\frac{4}{3}\right)^5, b = \left(-\frac{2}{3}\right)^2 \times x^3, c = 3^6$

5. Express each of the following no.'s as a product of powers of their prime factors: -

a) 675

b) 36

c) 24000

Ans. $a = (3)^3 \times (5)^2, b = (2)^2 \times (3)^2, c = (2)^6 \times (3)^1 \times (5)^3$

6. Express each of the following as a rational no. of the form $\frac{p}{q}$.

a) $\left(\frac{3}{7}\right)^2$

b) $\left(-\frac{2}{3}\right)^4$

Ans. $a = \frac{9}{49}, b = \frac{16}{81}$

7. Express each of the following rational no.'s in power notation.

a) $\frac{49}{64}$

b) $-\frac{1}{216}$

Ans. $a = \left(\frac{7}{8}\right)^2, b = \left(-\frac{1}{6}\right)^3$

8. Find the value: -

a) $\left(\frac{-3}{5}\right)^4 \times \left(\frac{4}{9}\right)^4 \times \left(\frac{-15}{18}\right)^2$

Ans. $a = \frac{64}{18225}$

9. If $a = 2$ and $b = 3$ then, find the value of: -

a) $\left(\frac{a}{b} \times \frac{b}{a}\right)^a$

b) $(ab)^b$

Ans. $a = 1, b = 216$

10. Using laws of exponents, simplify and write the answer in exponential form:-

a) $5^{12} \div 5^3$

b) $(5^{21} \div 5^{13}) \times 5^7$

Ans. $a = (5)^9, b = (5)^{15}$

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

a) $\frac{5^4 \times x^{10} y^5}{5^4 \times x^7 y^4}$

b) $\{(2^3)^4 \times 2^8\} \div 2^{12}$

Ans. $a = x^3 y^1, b = (2)^8$

12. Write $9 \times 9 \times 9 \times 9 \times 9$ in exponential form with base 3.

Ans. $(3)^{10}$

13. Simplify: - a) $\frac{(16)^7 \times (25)^5 \times (81)^3}{(15)^7 \times (24)^5 \times (80)^3}$

Ans. 2

14. Find the value of n : -

a) $7^{2n+1} \div 49 = 7^3$

Ans. 2

15. If $\frac{9^n \times 3^2 \times 3^n - (27)^n}{[(3)^3]^5 \times 2^3} = \frac{1}{27}$. Find the value of n .

Ans. 4

16. Express the following no.'s in the standard form: -

a) 723×10^9 b) 5,00,00,000 c) Diameter of the earth is 1,27,56,000 metres.

Ans. $a = 7.23 \times 10^{11}, b = 5.0 \times 10^7, c = 1.2756 \times 10^7 m$

17. Write the following no.'s in the usual form: -

a) 3.21×10^5

Ans. 321000

18. Write the following no.'s in the expanded exponential forms.

a) 5004132 Ans. $5 \times 10^6 + 4 \times 10^3 + 1 \times 10^2 + 3 \times 10^1 + 2 \times 10^0$

19. Find the no. from each of the following expanded forms: -

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

Ans. 900530

20. Solve: -

a) $(6^{-1} - 8^{-1})^{-1}$

Ans. 24