

Bhavan's V. M. Public School, Baroda.

Ch-13.Exponents & Powers.

1. Express each of the following rational number in exponential form:

a) $\frac{-27}{125}$ b) $\frac{-1}{243}$ c) $\frac{-64}{729}$

2. Simplify:

a) $\left[(5^{21} \div 5^{18}) \times 5^2 \right]$ b) $\left[(2^2)^3 \times 3^6 \right] \div 6^5$ c) $\left[(3^5 \times 3^2)^3 \right] \div 3^{18}$
d) $\frac{5^7}{5^4} \times 5^2$ e) $\frac{2^{15}}{2^7 \times 2^3}$

3. Write in exponential form:

a) $\frac{5^4 \times x^{10} y^5}{5^4 \times x^7 y^4}$ b) $\frac{9^8 \times (x^2)^5}{(27)^4 \times (x^3)^2}$ c) $\frac{(16)^7 \times (25)^5 \times (81)^3}{(15)^7 \times (24)^5 \times (80)^3}$
d) $\left(\frac{x}{y} \right)^{12} \times y^{24} \times (2^3)^4$

4. Find the value of "n" in each of the following:

a) $(5)^{2n} \times 5^3 = (5^{11})$ b) $(-3)^{m+1} \times -3^5 = (-3^7)$ c) $(-4)^{2n} \div 4^2 = (4^6)$
d) $(7)^{2n+1} \div 49 = (7^3)$ e) $125x 5^{3n+1} = 5^{10}$

5. Express in standard form:

a) 3,18,65,00,000
b) 723×10^9
c) 0.00069
d) 84,000

6. Write the following numbers in usual form:

a) 4.83×10^7
b) 5.8×10^5

7. Write the following numbers in the expanded exponential form:

a) 20037
b) 135792

8. Find the number from each of the following expanded forms:

a) $9 \times 10^5 + 5 \times 10^2 + 3 \times 10^1$
b) $7 \times 10^4 + 6 \times 10^3 + 0 \times 10^2 + 4 \times 10^1 + 5 \times 10^0$

9. Simplify. $\left(\frac{3}{5} \right)^5 \div \left[\left(\frac{3}{5} \right)^3 + 2 \left(\frac{3}{5} \right)^3 \right]$

10. Simplify. $(x^a)^{b+c} \cdot (x^b)^{c+a} \cdot (x^c)^{a+b}$

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Ms Rani Rauthan