

Exponents and Powers

1. Find the multiplicative inverse of the following

a) 3^{-4} b) 7^{-2} c) 9^{-9} d) 10^{-80}

2. Expand the following numbers using exponents

a) 18964.63 b) 7064.373

3. Simplify and write in exponential form

a) $(-3)^{-3} \times (-3)^{-2} \times (-3)^{-5}$

b) $a^{-8} \times a^{10} \times a^{-2}$ (c) $(2^3 \times 2^6 \times 2^2) \div 2^{-6}$

4. Express 9^{-3} as a power with the base 3.

5. Find the value of:

a) $\left[\left(\frac{1}{2}\right)^0 + \left(\frac{1}{5}\right)^3 + \left(\frac{2}{3}\right)^2 \right]$

b) $\left[\left(\frac{1}{3}\right)^{-2} - \left(\frac{1}{2}\right)^{-3} \right] \div \left(\frac{1}{4}\right)^{-2}$

c) $\left(\frac{9}{5}\right)^{-8} \times \left(\frac{5}{9}\right)^{-5}$ d) $(9^2 - 4^3) \times \left(\frac{-3}{17}\right)^2 \times \frac{34}{9}$

6. Simplify : $\left[\left(\frac{1}{4}\right)^4 \times \left(\frac{1}{4}\right)^3 \right] \times \left[\left(\frac{3}{5}\right)^{12} \div \left(\frac{3}{5}\right)^5 \right]$

7. Find x, if $\left(\frac{2}{3}\right)^{-5} \times \left(\frac{2}{3}\right)^{12} = \left(\frac{2}{3}\right)^{3x-2}$

8. Simplify :- $\left(\frac{a}{b}\right)^4 \times \left(\frac{4ab}{3a}\right)^2 \times \left(\frac{b}{2a}\right)^3$

9. Evaluate :- (a) $\frac{4^{-\frac{1}{2}} \times 2^{\frac{1}{2}} \times 2}{8 \times 8^{-\frac{1}{2}}}$ (b) $\frac{(48)^{-2} \times (64)^{\frac{1}{2}}}{(24)^{-1}}$

10. Write the following in standard form:

a) 0.0000389 b) 19280000 c) $\frac{0.000462}{10^7}$

11. Express the following numbers in usual form

a) 2.08×10^{-5} b) 381624×10^6 c) 9×10^{-7}

12. Simplify : $\left(\frac{2}{3}\right)^3 \times \left(\frac{2}{3}\right)^{-2} \left[\left(\frac{1}{2}\right)^2 \right]^{-2} \times \frac{1}{24}$