

Math | Worksheet | Class 8

Exponents and Powers

1. Find the values of each of the following:

- $3^{-1} + 4^{-1}$
- $(3^0 + 4^{-1}) \times 2^2$
- $(3^{-1} + 4^{-1} + 5^{-1})^0$
- $\left(\left(\frac{1}{3}\right)^{-1} - \left(\frac{1}{4}\right)^{-1}\right)^{-1}$

2. Write each of the following in exponential form:

- $\left(\frac{3}{2}\right)^{-1} \times \left(\frac{3}{2}\right)^{-1} \times \left(\frac{3}{2}\right)^{-1} \times \left(\frac{3}{2}\right)^{-1}$
- $\left(\frac{2}{5}\right)^{-2} \times \left(\frac{2}{5}\right)^{-2} \times \left(\frac{2}{5}\right)^{-2}$

3. Express each of the following as a rational number in the form p/q :

- $(-4)^{-1} \times (-3/2)^{-1}$
- $(3/5)^{-1} \times (5/2)^{-1}$

4. Simplify:

- $\left(\left(\frac{1}{3}\right)^{-3} - \left(\frac{1}{2}\right)^{-3}\right) \div \left(\frac{1}{4}\right)^{-3}$
- $(3^2 - 2^2) \times \left(\frac{2}{3}\right)^{-3}$
- $\left(\left(\frac{1}{2}\right)^{-1} \times (-4)^{-1}\right)^{-1}$
- $\left(\left(\left(-\frac{1}{4}\right)^2\right)^{-2}\right)^{-1}$
- $\left(\left(\frac{2}{3}\right)^2\right)^3 \times \left(\frac{1}{3}\right)^{-4} \times 3^{-1} \times 6^{-1}$

5. Find x , if

- $\left(\frac{1}{4}\right)^{-4} \times \left(\frac{1}{4}\right)^{-8} = \left(\frac{1}{4}\right)^{-4x}$
- $\left(-\frac{1}{2}\right)^{-19} \div \left(-\frac{1}{2}\right)^8 = \left(-\frac{1}{2}\right)^{-2x+1}$
- $\left(\frac{2}{5}\right)^{-3} \times \left(\frac{2}{5}\right)^{15} = \left(\frac{2}{5}\right)^{2+3x}$
- $\left(\frac{8}{3}\right)^{2x+1} \times \left(\frac{8}{3}\right)^5 = \left(\frac{8}{3}\right)^{x+2}$

6. Find the value of x for which $5^{2x} \div 5^{-3} = 5^5$

7. By what number should $\left(\frac{1}{2}\right)^{-1}$ be multiplied so that the product may be equal to $\left(-\frac{4}{7}\right)^{-1}$

8. By what number should $(-15)^{-1}$ be divided so that the quotient may be equal to $(-5)^{-1}$

9. By what number should $\left(\frac{5}{3}\right)^{-2}$ be multiplied so that the product may be $\left(\frac{7}{3}\right)^{-1}$