Chapter 12

Exponents and Powers

Powers with negative exponents:

If 'a' is non – zero rational number and 'n' is a positive integer, we define $a^{-n} = \frac{1}{a^n}$.

i.e., a^{-n} and a^n are reciprocals (multiplicative inverses) of each other.

Example (1):

Find the multiplicative inverse of $\left(\frac{-5}{11}\right)^{-4}$.

Sol. $\left(\frac{-5}{11}\right)^{4} = \frac{1}{\left(\frac{-5}{11}\right)^{-4}} \left(\because a^{-n} = \frac{1}{a^n}\right)$

$\therefore \left(\frac{-5}{11}\right)^{-4}$ is the multiplicative inverse of $\left(\frac{-5}{11}\right)^{4}$.

Example (2):

Write the reciprocal of 6^{-4}.

Sol. $\therefore 6^{-4} = \frac{1}{6^4} \left(\because a^{-n} = \frac{1}{a^n}\right)$

$\therefore 6^4$ is the reciprocal of 6^{-4}.