

## Laws of Indices

There are certain laws that are to be followed while carrying out operations with Indices / Exponents.

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### The laws

1. Multiplication - When the base is same in both the terms, we add the exponent and keep the base same -  $2^6 \times 2^4 = 2^{10}$

- General rule -  $a^m \times a^n = a^{m+n}$

2. Division - When the base is same in both the terms, we subtract the exponent and keep the base same -  $2^6 \div 2^4 = 2^2$

- General rule -  $a^m \div a^n = a^{m-n}$

3. Brackets - When the whole term is raised to an exponent, we multiply both the exponents and keep the base -  $(2^6)^2 = 2^6 \times 2^6 = 2^{12}$

- General rule -  $(a^m)^n = a^{m \times n}$

4. Index of 0 - When any letter or number raised to 0, the answer will be 1. -  $3^0 = 1$

- General rule -  $a^0 = 1$

### 5. Negative Exponent

$$2^{-2} = \frac{1}{2^2} \quad \text{Using } a^{-m} = \frac{1}{a^m}$$

$$= \frac{1}{4}$$

- When the base is raised to a negative exponent, the term becomes a fraction and then we have to make the negative exponents positive and do it with the fraction. -