EXPONENTS

If 'm' is a positive integer, then a × a × a…… up to 'm' terms is written as a^m, where 'a' is the base and 'm' is the power.

LAWS OF INDICES

- **1ST LAW (Product Law) :** $a^m \times a^n = a^{m+n}$
- **2nd LAW (Quotient Law) :** $\frac{a^m}{a^n} = a^{m-n}$ $where\ m > n$; $\frac{a^m}{a^n} = \frac{1}{a^{n-m}}$ $where\ n > m$
- **3rd LAW (Power Law) :** $(a^m)^n = a^{m \times n}$

MORE ABOUT EXPONENTS

- $(a \times b)^m = a^m \times b^m$
- $(\frac{a}{b})^m = \frac{a^m}{b^m}$
- **If a ≠ 0 and 'n' is a positive integer, then** $\sqrt[n]{a} = a^{1/n}$
- $a^{\frac{m}{n}} = \sqrt[n]{a^m}$ $where\ a \neq 0\ and\ n \in N$
- **For any non zero number a,** $a^n = \frac{1}{a^{-n}}$ $and\ a^{-n} = \frac{1}{a^n}$
- **A non zero number raised to the power zero is always equal to unity (i.e. 1)**

KNOW THIS

- $a^0 = 1$
- $a^1 = a$
- $a^1\ a^{-1} = 1$
- $0^m = 0$
- $(-a)^m = a^m$; $if\ m\ is\ even\ number$