# Factsheet: Laws of indices

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#### **Summary**

A list of laws of indices.

The associated study guide for this factsheet is Guide: Laws of indices. If you would like to know more about these, please read the guide.

Throughout this factsheet, a,b are positive real numbers, r and s are real numbers, and n is a positive whole number.

#### Laws of indices

 $\mathbf{Law} \ \mathbf{1}: \quad a^r \cdot a^s = a^{r+s}.$ 

 $\mathbf{Law} \ \mathbf{2}: \quad \frac{a^r}{a^s} = a^{r-s}.$ 

**Law 3**:  $(a^r)^s = a^{r \cdot s}$ .

**Law 4**: If a is non-zero, then  $a^0 = 1$ .

**Law 5**:  $a^{-r} = \frac{1}{a^r}$ 

**Law 6**:  $a^{1/n} = \sqrt[n]{a}$ .

 $\text{Law 8:} \quad \frac{a^r}{b^r} = \left(\frac{a}{b}\right)^r.$ 

Law 10:  $\sqrt[n]{a \cdot b} = \sqrt[n]{a} \cdot \sqrt[n]{b}$ .

For more on the subject, please go to Guide: Laws of indices

## Version history and licensing

v1.0: created in 05/24 by tdhc.

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