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

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

Law 2: $\dfrac{a^r}{a^s} = a^{r-s}$.

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

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

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

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

Law 7: $a^r \cdot b^r = (ab)^r$.

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

Law 9: $a^{1/n} \cdot b = \sqrt[n]{a \cdot b^n}$.

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

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