UNCATEGORIZED

laws of indices

By Planeto October 1, 2026

2SIX3 MATHEMATICS · YEAR 10 HIGHER

Index Laws Tile Match

Select a rule name, then select the example that shows it. Match all eight pairs and explain one law to your teacher.

> **How to play:** Choose one tile from each column. A wrong pair stays available for another try. You can use the keyboard: Tab to a tile, then press Enter or Space.

Rules you have matched

1. **Zero index — $a^0 = 1$ for $a \neq 0$.** Any non-zero base to the power zero equals 1.
2. **Negative index — $a^{-n} = 1/a^n$ for $a \neq 0$.** Take the reciprocal; the result is not automatically negative.
3. **Power of a power — $(a^m)^n = a^{mn}$.** Multiply the exponents: 2 × 3 = 6.
4. **Power of a product / quotient — $(ab)^n = a^n b^n$; $(a/b)^n = a^n/b^n$.** Apply the exponent to each factor; for a quotient the denominator must be non-zero.
5. **Fractional index — a^(m/n) = $(\sqrt[n]{a})^m$.** The denominator gives the root; the numerator gives the power. Use positive bases here.
6. **Product law — $a^m \times a^n = a^{m+n}$.** Same base: add exponents, 3 + 4 = 7.
7. **Quotient law — $a^m \div a^n = a^{m-n}$.** Same non-zero base: subtract exponents, 7 − 3 = 4.

8. **Powers of ten — 10^{-2} = 1/100 = 0.01.** A negative power of ten moves the decimal left. This also uses the negative-index law.

All eight laws matched!

8/8 matches · 9 attempts · 03:02

Review the rule explanations above, then try another shuffled round for fluency.

Teacher discussion: Why does $10^{-2} = 0.01$? How is this linked to the negative-index law?

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