Index laws and equivalent expressions

Key knowledge | Free preview

Learning target: Understand the index rules used to manipulate powers.

Equivalent expressions agree on a shared valid domain. Rewrite roots as rational powers when appropriate, combine exponents carefully, and keep restrictions caused by denominators. Expansion and factorisation use the distributive law in opposite directions. A simplified expression can have a larger apparent domain than the original, so preserve exclusions.

Try the mathematics

Task 1. For $x>0$, simplify $x^{(-2)}\cdot x^{(5/2)}/\sqrt{x}$. For nonzero x and y, simplify $(3x^2y^{(-1)})^2/(9xy^{(-2)})$. Show the exponent calculations.

Continue with the full worksheet

The complete resource has 2 focused task sets and substantive worked solutions. Use an exercise book or print the A4 worksheet. This preview shows the first task without its full solution.

Find this resource: https://resources.aspiretopowerlearning.com.au/vce/skills/aspire-mm-u1-o1-kk-07/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Mathematical Methods; Unit 1; Outcome 1; Key knowledge; bullet 7; p. 47.

The learning target is a concise paraphrase. Aspire reference: aspire-mm-u1-o1-kk-07. This is an internal identifier, not an official VCAA code.

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