Choosing product, quotient and chain rules

Key skills | Free preview

Learning target: Apply product, chain and quotient differentiation rules by hand to simple combinations.

First identify how the function is built: a product, quotient or composition may require different rules or several together. Keep brackets around each factor until differentiation is complete. Simplify afterwards to expose zeros and restrictions, then check the derivative by an independent method where possible. The original domain can constrain the derivative domain as well.

Try the mathematics

Task 1. Differentiate $y=x^2e^{(-x)}$ by hand and factor the result. Find all stationary x-values on $x\geq 0$.

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-u34-o1-ks-11/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Mathematical Methods; Units 3–4; Outcome 1; Key skills; bullet 11; p. 102.

The learning target is a concise paraphrase. Aspire reference: aspire-mm-u34-o1-ks-11. This is an internal identifier, not an official VCAA code.

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