Composition requires compatible sets

Key knowledge | Free preview

Learning target: Understand function combinations and how the component domains and ranges constrain the resulting function.

For the full composition f∘g, the range of the inner function must fit inside the domain of the outer function. If it does not, restrict the inner function explicitly before composing. Simplifying a formula does not remove the original domain constraints. Determine the final range from the admissible inputs, rather than from the simplified expression alone.

Try the mathematics

Task 1. Let $f(x)=\sqrt{(x-1)}$, domain $[1,\infty)$, and $g(x)=x^2$, domain R. Is f∘g defined on all of g's stated domain? Give an allowed restriction, then state the composite rule, domain and range.

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-kk-06/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Mathematical Methods; Units 3–4; Outcome 1; Key knowledge; bullet 6; p. 102.

The learning target is a concise paraphrase. Aspire reference: aspire-mm-u34-o1-kk-06. This is an internal identifier, not an official VCAA code.

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