Cubic quotient and remainder

Key skills | Free preview

Learning target: Divide an integer-coefficient cubic by x-a by hand and express the result as a quadratic quotient plus a remainder.

Dividing a cubic by a linear factor produces a quadratic quotient and a constant remainder. Record the identity $p(x)=(x-a)q(x)+r$ and check it by multiplying back. The remainder is also $p(a)$, which gives an independent check. A zero remainder is exactly the condition that x-a is a factor.

Try the mathematics

Task 1. Divide $p(x)=2x^3-3x^2-8x+12$ by x-2 by hand. Give q(x), r, and the full identity.

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-ks-06/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Mathematical Methods; Unit 1; Outcome 1; Key skills; bullet 6; p. 47.

The learning target is a concise paraphrase. Aspire reference: aspire-mm-u1-o1-ks-06. This is an internal identifier, not an official VCAA code.

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