Factors, roots and quadratic tests

Key knowledge | Free preview

Learning target: Recognise factorisation identities, the quadratic formula and discriminant, polynomial remainder/factor/rational-root results, and the zero-product principle.

The remainder theorem evaluates the remainder at a proposed root. A zero remainder gives a linear factor, while the rational-root theorem supplies candidates rather than guaranteed roots. Quadratic identities, the quadratic formula and the discriminant offer complementary routes. Always connect the factorisation to solutions using the zero-product principle.

Try the mathematics

Task 1. For $P(x)=x^3-4x^2+x+6$, list the integer rational-root candidates. Use $P(2)$ to find one factor, then factor fully and state the real roots.

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-06/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Mathematical Methods; Unit 1; Outcome 1; Key knowledge; bullet 6; p. 46.

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

Free preview: share intact with attribution, without charging. Full resource rights are not included.

Original independent practice. Not published or endorsed by VCAA. The activity is not an official SAC, examination or complete treatment of every clause of a broad curriculum requirement.