Roots, touches and polynomial sketches

Key skills | Free preview

Learning target: Sketch linear, quadratic and cubic polynomials and factored quartics by hand, showing roots, touches, stationary inflections and approximate turning points as applicable.

A factorised polynomial reveals where a graph crosses or touches the horizontal axis. Odd root multiplicity gives a crossing and even multiplicity gives a touch. The leading term controls distant behaviour. Build a sketch from this information, intercepts and a small table; do not assume every zero is a turning point.

Try the mathematics

Task 1. Sketch $y=(x+1)(x-2)^2$. Mark the roots and y-intercept, distinguish crossing from touching, and use $x=0$ and $x=1$ to guide the curve.

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-10/

Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Mathematical Methods; Unit 1; Outcome 1; Key skills; bullet 10; p. 47.

The learning target is a concise paraphrase. Aspire reference: aspire-mm-u1-o1-ks-10. This is an internal identifier, not an official VCAA code.

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