# Completing the square

## Key skills | Free preview

Learning target: Convert a quadratic with integer coefficients and nonzero leading coefficient to completed-square form by hand.

To complete the square in a non-monic quadratic, factor the coefficient of $x^2$ from the quadratic and linear terms first. Add and subtract the square needed inside those brackets, then simplify the outside constant. The completed-square form reveals the vertex and extremum directly, and expansion checks every coefficient.

## Try the mathematics

Task 1. Write $2x^2-12x+11$ in completed-square form by hand. State its minimum and where it occurs.

## 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-05/

## Study-design reference

VCE Mathematics Study Design 2023-2027, version 1.1 (November 2022). Mathematical Methods; Unit 1; Outcome 1; Key skills; bullet 5; p. 47.

The learning target is a concise paraphrase. Aspire reference: aspire-mm-u1-o1-ks-05. This is an internal identifier, not an official VCAA code.

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