

Teacher guide: Solving quadratics

Objective: Solve quadratic equations using tier-appropriate methods.

Calculator condition: Calculator allowed where labelled; non-calculator reasoning remains required.

Learning Cycle plan

Stage	Time	Teacher move	Evidence to collect
Connect & Check	5 min	State the objective and timeline. Retrieve quadratic graphs and roots or a prerequisite. Diagnose a common error before modelling.	Independent written response, correction or verbal explanation.
Share	7 min	Pairs compare methods or predict a result for solving quadratics. Ask for a reason, not only an answer.	Independent written response, correction or verbal explanation.
Present	10 min	Start with factorisation and the zero-product property; Higher: formula and completing the square	Independent written response, correction or verbal explanation.
Apply	25 min	Solve varied equations and substitute to check solutions Use guided support, then remove it for independent working.	Independent written response, correction or verbal explanation.
Recall & Review	8 min	Revisit the objective. Learners solve a fresh item without prompts, explain a check, correct one error and record the next practice.	Independent written response, correction or verbal explanation.

Differentiation

- All learners reach the same objective; route choice changes the journey, not the standard.
- Use visual, method and explanation routes to support access.
- Remove prompts before exit evidence.
- Use stretch and deep challenge only after the core method is secure.

Assessment response

- Check the formative mini-test and independent workbook response against the objective. Use the teacher answers or mark guidance; group errors for reteaching. NC/C selected to purpose; label each question.

Recall & Review: feedback and extension integration

Lesson L059: Solving quadratics

Objective: Solve quadratic equations using tier-appropriate methods.

Timing for a 60-minute lesson

0-7 Connect & Check; 7-14 Share; 14-25 Present/model; 25-44 Apply route choice/practice; 44-52 independent exam-style check; 52-60 Recall & Review, WWW/EBI and next step.

Recall & Review evidence

At the end of the lesson, solve a fresh question without prompts, explain one check, correct one error and record the next practice step.

What Went Well (WWW)

I represented the algebraic structure accurately, kept each transformation valid and checked the result by substitution, graph or equivalent reasoning.

Even Better If (EBI)

I will show the missing inverse operation or algebraic step, keep signs and brackets accurate and test the result in the original relationship.

Integrated stretch and deep challenge

Stretch: Solve $3x^2 - 12x = 0$ and check both roots.

Deep challenge: Explain why dividing $x^2 = 9$ by x can lose a solution.

Teacher use

Use the What Went Well (WWW) and Even Better If (EBI) prompts to write mathematics-specific feedback linked to the objective. Do not accept generic praise: identify the method, representation, reasoning or checking step that improved, then set a fresh next-step question.

Assessment evidence to inspect: Check the formative mini-test and independent workbook response against the objective. Use the teacher answers or mark guidance; group errors for reteaching. NC/C selected to purpose; label each question.