

Slide by slide delivery map

Pearson Edexcel GCSE Mathematics 1MA1 • L019

21 slides • 60 minutes • Teacher use only • Lesson resources

REACH FOR THE STAR | GCSE MATHEMATICS

01 Linear equations 1 min Recall

Solve linear equations while preserving equality. Check solutions in the original equation, including unknowns on both sides.

02 The goal and the evidence 1 min Recall

L017 substitution; L018 expanding single brackets and collecting terms.

03 Starting-point diagnostic 5 min Recall

If learners change only one side, annotate the same operation on both sides. If $3(x+2)$ is expanded incorrectly, revisit L018. Recheck $2x+5=13$ and $5x-2=3x+6$.

04 Preserve equality at each step 2 min Discover

Equal expressions stay equal when the same operation is applied to both. Subtract 3 from each side; divide both by 2; substitute $x=4$ into the original.

05 Worked example and your turn 3 min Discover

$x=13$. Add 4 on both sides.

Delivery continued

06 Worked example and your turn 3 min Discover

$x=5$. Add 3 then divide by 4.

07 Worked example and your turn 3 min Discover

$x=7$. Divide by 3 then add 2.

08 Worked example and your turn 3 min Discover

$x=5$. Subtract $4x$, add 2, divide by 3.

09 A method you can explain 2 min Discover

Simplify brackets first. Subtract an unknown term from both sides if needed. Undo addition or subtraction, then multiplication or division. Substitute into the original equation and compare both sides.

10 Diagnostic pause 3 min Apply

Solve $2x+3=11$. First useful step? A divide only 11 by 2, B subtract 3 from both sides, C add 3 to both sides. Answer B.

Delivery continued

11 Careful variation 4 min Apply

$x=4$; $x=7$; $x=-4$. Signs and order change the operations.

12 Independent application 4 min Apply

$x=5$; both sides equal 28. $4x+8=3x+13$.

13 Use the method in context 4 min Apply

$3x+7=31$; $x=8$. Subtract 7, then divide by 3.

14 Intentional practice feedback 2 min Apply

Subtract 7, then divide by 3. Optional check after A2: enter $4 \times (5+2)$ and $3 \times 5+13$. Both give 28. Checking does not replace showing the balanced solving steps.

15 A claim to test 4 min Challenge

Dividing by 2 must divide every term: $x+3=7$, so $x=4$. Check $2 \times 4+6=14$.

Delivery continued

16 Deepen the reasoning 4 min Challenge

First: all real x . Second: none, since 6 cannot equal 7. Simplification can remove the unknown; interpret the remaining statement.

17 Retrieval without notes 4 min Prove

Answers: 7, 6, 7, -4, 4, 21. Completion is not mastery.

18 Independent exit evidence 2 min Prove

$5x=20$ M1; $x=4$ A1. Check $20-4=16$.

19 Independent exit evidence 3 min Prove

$2x=12$ M1; $x=6$ A1. Substitute to obtain 37 on each side.

20 Feedback and next steps 2 min Prove

If learners change only one side, annotate the same operation on both sides. If $3(x+2)$ is expanded incorrectly, revisit L018. Recheck $2x+5=13$ and $5x-2=3x+6$.

Delivery continued

21 Before the next lesson 1 min Recall

Translate the situation before solving. Define the unknown and its units, form the equation, solve it, then decide whether the answer makes sense in the context.

Recall & Review: feedback and extension integration

Lesson L019: Linear equations

Objective: Solve linear equations while preserving equality. Check solutions in the original equation, including unknowns on both sides.

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 $5(2x-1)=3x+16$ and check.

Deep challenge: Explain why dividing $3x+6=12$ by 3 gives $x+6=4$ incorrectly.

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. Non-calculator core; optional calculator check.