

Teacher guide and workbook answers

Pearson Edexcel GCSE Mathematics 1MA1 • L018

60 minutes • Foundation and Higher • Teacher use only • Lesson resources

REACH FOR THE STAR | GCSE MATHEMATICS

Purpose and prerequisites

Collect like terms, expand a single bracket and factorise a common factor. Explain how these equivalent forms are connected.

L017 notation and substitution; integer products and common factors.

Selected specification content: A1 A4. These lessons revisit shared content; they do not complete every aspect of those statements.

Preparation and support

Prepare mini-whiteboards, printed fallbacks and a teacher calculator. Use ratio tables, algebra tiles, balance diagrams and number lines as appropriate. Confirm save/export/restore in the intended environment; browser QA remains pending. Distribute only the learner package.

Access: pre-teach vocabulary and read symbols aloud. Scaffold: model the first decision, offer a worked-example or inverse-check frame. Core: remove prompts for A2 and P1–P2. Stretch: C1–C2 deepen reasoning for either tier. Record the support used, not a fixed ability label.

Evidence and pacing

The delivery map totals 60 minutes. Use the recall and hinge to select a repair; the suggested one-third error trigger is a planning judgement, not a validated threshold. If errors are widespread, use two minutes from independent practice and defer C2. P1–P2 need teacher marking. The mini-test and exam practice are delayed/additional activities, not extra tasks squeezed into the hour.

Expand $3(x+4)$: A $3x+4$, B $3x+12$, C $7x$. Answer B: multiply both terms.

Recall and guided-practice answers

R1

20. $12+8$.

R2

6. Largest shared positive factor.

R3

6. Product of two negatives is positive.

D1

$3a+4$. Collect a terms; the constant stays separate.

D2

$4y-12$. $4 \times (-3) = -12$.

D3

$-3a-6$. Multiply the positive 2 by -3 .

D4

$4(2a+3)$. HCF of coefficients is 4.

Application and challenge answers

A1

$5x$; $3x+2y$; $5x^2$; $3x^2+2x$. Only identical letter parts combine.

A2

$5x-10$; $8x-6$. Expand first, then collect terms.

A3

$2(x+2)+6=2x+10$ cm. Two lengths and two widths.

C1

Expanding gives $6x+72$. Correct: $6(x+2)$. Divide every original term by the factor.

C2

$3x+12-2x-2=x+10$. Algebra proves all values; a substitution only checks one.

Calculator guidance: Optional check after C2: substitute $x=2$ in $3(x+4)-2(x+1)$ and $x+10$; both give 12. Numerical agreement is a check, not proof for every x .

Independent evidence and next steps

P1

$2x+10+3x$ M1; $5x+10$ A1. Multiply both bracket terms.

P2

$6(2x+3)$ B1; correct expansion $12x+18$ B1. Equivalent full factorisations accepted.

P3

Individual reflection. Record support and delayed evidence; completion is not mastery.

F1

$-2x-8$; $5(2x+3)$. Check by expansion.

F2

$x=7$. Equal quantities remain equal after the same subtraction. Use a balance idea.

Retrieval answers: 8, 12, 10, 6, 16, -4. Exact signed decimals/fractions/mixed numbers are accepted; unsupported notation goes to review. No automatic method marks. For rounding, equivalent numerical values may pass retrieval; the teacher checks stated accuracy and required trailing zeros in written work.

Reteaching and release

If only the first term is multiplied, draw two product arrows. If unlike powers are collected, compare $x=3$. For negative brackets, write each signed product. Recheck $-2(x-3)=-2x+6$.

Practice feedback is intentionally visible. Full assessment answers, this guide and delivery notes are teacher-only. Local saving is browser dependent; no account service is included. Completed resources enter Review; human approval and outstanding browser checks remain required.

Optional extension answers

Stretch

Expand and simplify $3(2x-5)-2(x+4)$.

Answer and reasoning: $6x-15-2x-8=4x-23$.

Deep challenge

Factorise $6x^2+9x$ fully and check by expansion.

Answer and reasoning: $3x(2x+3)$.

Activate Learning lesson cycle

Connect & Check: state the objective and diagnose prior knowledge. Share: pairs predict and compare methods. Present: explain or uncover the model. Apply: fade support for independent practice and optional stretch. Recall & Review: use a fresh question and feedback to decide the next step.

Recall & Review: feedback and extension integration

Source-integrated WWW/EBI and extension page

Lesson L018: Collect expand and factorise

Objective: Collect like terms, expand a single bracket and factorise a common factor. Explain how these equivalent forms are connected.

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 a check, correct one error and record the next practice step.

What Went Well (WWW)

I wrote the algebraic structure accurately and used a valid step-by-step method.

Even Better If (EBI)

I will show inverse operations clearly, keep signs/brackets accurate and substitute back to check.

Integrated stretch and deep challenge

Stretch: Expand and simplify $3(2x-5)-2(x+4)$.

Deep challenge: Factorise $6x^2+9x$ fully and check by expansion.

Teacher use

Use the WWW/EBI prompts to write mathematics-specific feedback linked to the objective. Do not accept generic praise; feedback should 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.