

Teacher guide and workbook answers

Pearson Edexcel GCSE Mathematics 1MA1 • L002

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

REACH FOR THE STAR | GCSE MATHEMATICS

Purpose and prerequisites

Calculate with signed products, quotients and mixed operations; justify the order and check with an inverse.

L001 signed addition/subtraction; whole-number multiplication facts and division; simple squares.

Selected specification content: N2 N3. 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 a place-value chart or signed-number line 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.

For $18 \div 3 \times 2$, A 3, B 12, C 6. B is correct: $18 \div 3 = 6$, then $\times 2$. A wrongly groups 3×2 . C stops early. Recheck with $20 \div 5 \times 2 = 8$.

Recall and guided-practice answers

R1

3 and 3. Use addition of the opposite for the subtraction.

R2

24 and 4. Division undoes multiplication.

R3

$3 \times 3 = 9$. The exponent 2 means two equal factors, not double.

D1

-12 . Four groups of -3 have a total of -12 .

D2

12; 0; 10. Distribution over $4 + (-4) = 0$ explains the sign.

D3

4; $(-6) \times 4 = -24$. The divisor times the quotient must equal the dividend.

D4

-6 ; 1. Multiply before adding.

Application and challenge answers

A1

12, -12, -12, 12. Changing one factor's sign changes the product's sign; changing both restores it.

A2

12; 3; 15. Use left-to-right order at equal priority; brackets change grouping.

A3

$-7 + 3 \times 4 - 9 = -4$, so -£4. Payments are positive changes. Check $-4 + 9 - 12 = -7$.

C1

-5 and 6. The claim works for a product of two negative numbers, not every operation. State the operation before using a sign rule.

C2

9 and -9. $(-3)^2 = (-3) \times (-3)$; -3^2 means $-(3 \times 3)$. A power acts on its base; brackets show that the negative sign belongs to the base.

Calculator guidance: Optional check only: estimate the sign, then enter $(-18) \div (-3) + 2 \times 4$ using brackets and the negative-number key. Expect 14. Calculator models differ; demonstrate your own.

Independent evidence and next steps

P1

–6. M1 for $3 \times (-4) = -12$; A1 for $6 - 12 = -6$. Teacher review; method must be shown.

P2

7 B1; $(-6) \times 7 = -42$ B1. Teacher reviews the check separately.

P3

Individual reflection. No marks; completion is not mastery.

F1

24; 12. Retrieve again in one week.

F2

37; 0.48; 0.06 (six hundredths). Bring one place-value question.

Retrieval answers: -20, 18, -4, 8, 11, 14. 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

Negative product error: rebuild three groups of -4 , then use distribution over a zero pair.

Quotient error: write divisor $\times$ missing number = dividend. Order error: underline the next operation, write one transformation per line. Reassess with $-4 \times (-3) = 12$, $-35 \div 7 = -5$ and $12 - 2 \times 4 = 4$.

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

Calculate $48 \div (-6) \times (-2) + 5$, showing equal-priority operations left to right.

Answer and reasoning: $-8 \times -2 + 5 = 21$.

Deep challenge

Insert brackets in $6 + 2 \times 5 - 4$ to make 36 and explain your choice.

Answer and reasoning: $(6 + 2) \times 5 - 4 = 36$.

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

Lesson L002: Multiplication, division and order

Objective: Calculate with signed products, quotients and mixed operations; justify the order and check with an inverse.

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 selected an efficient numerical method, showed the key steps clearly and checked the sign, size or accuracy of my answer.

Even Better If (EBI)

I will make the place-value, sign or operation decision explicit and use estimation or an inverse calculation to check a fresh question.

Integrated stretch and deep challenge

Stretch: Calculate $48 \div (-6) \times (-2) + 5$, showing equal-priority operations left to right.

Deep challenge: Insert brackets in $6 + 2 \times 5 - 4$ to make 36 and explain your choice.

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.