

Teacher guide and workbook answers

Pearson Edexcel GCSE Mathematics 1MA1 • L008

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

REACH FOR THE STAR | GCSE MATHEMATICS

Purpose and prerequisites

Select, explain and check fraction methods; diagnose misconceptions and transfer a repaired method to a fresh problem.

L005–L007 factors, equivalence and four fraction operations; signed arithmetic from week 1.

Selected specification content: N2 N4 N5 N8. 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 fraction strips, equal-part bars or a ratio table 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.

Which is a useful check for $\frac{2}{3} + \frac{1}{6} = \frac{5}{6}$? A $\frac{5}{6} - \frac{1}{6} = \frac{2}{3}$, B repeat the addition, C $\frac{5}{6} + \frac{1}{6} = \frac{2}{3}$. A reverses the operation; B may repeat an error.

Recall and guided-practice answers

R1

$\frac{3}{4}$; 3. Use quarters.

R2

$\frac{2}{3}$; $\frac{10}{15} > \frac{9}{15}$. Use fifteenths.

R3

−5; 11. Preserve operation order.

D1

$\frac{7}{12}$. $\frac{4}{12} + \frac{3}{12}$ uses equal-sized parts.

D2

6. Each tenth fits six times in six tenths.

D3

$\frac{5}{8}$; $\frac{5}{8} + \frac{1}{4} = \frac{7}{8}$. Reverse subtraction with addition.

D4

$\frac{1}{2}$ litre. $(\frac{2}{3}) \times (\frac{3}{4}) = \frac{1}{2}$; the operator scales the quantity.

Application and challenge answers

A1

5/12; 7/12. Reverse with subtraction or addition.

A2

3/10; 8/15. Multiplication scales by 3/4; division asks how many 3/4-sized groups fit.

A3

6 litres. Initially 9 litres; 3 used; 6 remain.

C1

Both equal 1/6. Both partition one whole into 2×3 equal parts.

C2

R-black, R-grey, R-white, B-black, B-grey, B-white: 6. Use one shirt at a time; three choices for each. Higher extension H1 generalises this counting pattern.

Calculator guidance: Optional check after A3: $12 \times (3 \div 4) \times (2 \div 3) = 6$. Use brackets around each fraction and identify what each factor represents before entering it.

Independent evidence and next steps

P1

$8/12 + 3/12$ M1; $11/12$ A1. Do not add denominators.

P2

2 B1; $2 \times 3/8 = 3/4$ B1. Teacher checks the inverse.

P3

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

F1

6; $1/2$. Use delayed retrieval.

F2

0.5; 0.25. A fraction is numerator divided by denominator.

Retrieval answers: $5/12$, 2, $1/2$, 6, $1/2$, 0. 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

R1 errors: rebuild equivalent fractions before operations. R2 errors: compare common units. R3 errors: restore order of operations. Choose one repair rather than reteaching everything. Reassess $1/4 + 1/6 = 5/12$ and $(2/5) \div (1/5) = 2$ after a delay.

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.

Higher route and prerequisites

Higher route: replace the 2-minute A3 feedback and the two 4-minute Challenge discussions with this 10-minute taught extension. Retain core P1–P2. Set HX1–HX2 as the final four minutes of that alternative, and use the shared challenges later if needed. The core route remains 60 minutes; the extension is not an additional compulsory ten minutes. Route choice reflects tier curriculum, not temporary support needs.

Systematic lists; multiplication. No algebra required.

Use the Higher Extension and Teacher Higher Extension Answers documents. Alternative slides follow the core deck. Their zero minutes in the core total mean replacement slides, not zero teaching time; their subtitles state the $3 + 3 + 2 + 2$ minute allocation.

Adding choice counts only counts individual items. Multiplying by the full count again when repetition is forbidden overcounts. If combinations are restricted unequally, use separate cases or a systematic list; do not blindly multiply.

Optional extension answers

Stretch

Without notes, calculate $7/12 + 5/18$ and explain the common denominator.

Answer and reasoning: $21/36 + 10/36 = 31/36$.

Deep challenge

Is $2/3 + 3/4$ greater than 1? Show a method without decimals.

Answer and reasoning: $8/12 + 9/12 = 17/12 > 1$.

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 L008: Fraction reasoning and retrieval

Objective: Select, explain and check fraction methods; diagnose misconceptions and transfer a repaired method to a fresh problem.

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 selected a suitable representation or multiplier and kept the reference amount clear.

Even Better If (EBI)

I will state the whole/part, show each operation and check that the size of my answer is reasonable.

Integrated stretch and deep challenge

Stretch: Without notes, calculate $7/12 + 5/18$ and explain the common denominator.

Deep challenge: Is $2/3 + 3/4$ greater than 1? Show a method without decimals.

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.