

Teacher guide and workbook answers

Pearson Edexcel GCSE Mathematics 1MA1 • L011

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

REACH FOR THE STAR | GCSE MATHEMATICS

Purpose and prerequisites

Use multipliers for percentage change, recover an original value and distinguish simple interest from repeated growth.

L009 FDP; L010 percentage operators and recovering a whole; division and decimal multiplication.

Selected specification content: R9. 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.

After a 20% reduction, a price is £72. Original price? A £86.40, B £90, C £57.60. B: $72 \div 0.8$. A adds 20% of the wrong base.

Recall and guided-practice answers

R1

12; 0.2. Percentage operators use the reference whole.

R2

40. Divide by 0.75.

R3

1.25. One whole and one quarter.

D1

£68. 85% remains; $80 \times 0.85 = 68$.

D2

£60. 66 is 110%; divide by 1.1.

D3

20%. The increase is 12 compared with original 60.

D4

£324. £12 each year; £24 interest plus £300.

Application and challenge answers

A1

1.05→84; 0.95→76; 1.5→120; 0.5→40. Retain 100% before adding or subtracting the change.

A2

£81; £80; 25%. The relevant base is always the original.

A3

£96: $100 \times 1.2 \times 0.8$. The fall is 20% of £120, which is £24.

C1

33 $\frac{1}{3}$ %: the rise is $20/60 = 1/3$ of the reduced price. The original fall was 25%, but reversal uses a different base.

C2

Simple: £120. Repeated growth: £121. Simple adds £10 each year; repeated growth adds £10 then £11.

Calculator guidance: Core examples are non-calculator friendly. Optional check after A3:
 $100 \times 1.2 \times 0.8 = 96$. Keep intermediate values unrounded; use ordinary multipliers rather than a calculator-specific % key.

Independent evidence and next steps

P1

0.85×120 M1; £102 A1. A reduction leaves 85%.

P2

£80 B1; $80 \times 1.2 = 96$ B1. Reverse by division.

P3

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

F1

£60. $45 \div 0.75$; check 60×0.75 .

F2

Example: reversing a 20% fall by adding 20%; check the proposed original forwards. Bring both the wrong reasoning and repair.

Retrieval answers: 1.2, 60, 50, 25, 20, 21. 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 learners subtract the percentage from the final value to reverse, label the original as 100% and the final as 80% or 120%. If increase/decrease are claimed to cancel, test £100 up 20% then down 20%: £96. Recheck £54 after a 10% fall: original £60.

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

A coat costs £68 after a 15% reduction. Find its original price.

Answer and reasoning: $0.85 \times \text{original} = 68$, so $\text{original} = £80$.

Deep challenge

A price rises 20% and then falls 20%. Explain the net change using multipliers.

Answer and reasoning: $1.2 \times 0.8 = 0.96$, so the final price is 4% lower.

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 L011: Percentage change and reverse percentages

Objective: Use multipliers for percentage change, recover an original value and distinguish simple interest from repeated growth.

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: A coat costs £68 after a 15% reduction. Find its original price.

Deep challenge: A price rises 20% and then falls 20%. Explain the net change using multipliers.

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.