

Teacher guide and workbook answers

Pearson Edexcel GCSE Mathematics 1MA1 • L003

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

REACH FOR THE STAR | GCSE MATHEMATICS

Purpose and prerequisites

Use place value to scale and compare decimals, round to stated accuracy, and judge whether a calculation is reasonable.

L001 ordering; L002 four operations and order; whole-number place value.

Selected specification content: N2 N13 N14 N15. 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.

Which is 5.078 to 2 decimal places? A 5.07, B 5.08, C 5.1. B: retain hundredths, inspect 8. A truncates; C rounds to one decimal place. Recheck 3.146 to 2 d.p. = 3.15.

Recall and guided-practice answers

R1

−5 and 12. Keep signs and operation order separate.

R2

70; 346. Place determines value.

R3

0.6, because $0.60 > 0.56$. Compare tenths first; digit count is not value.

D1

$2 + 0.5 + 0.007$; 0.5. The 5 is in the tenths place.

D2

30.6; 0.0306. Each digit moves into a place worth ten times as much, or one hundredth as much.

D3

6.29. The next digit is 6, so increase the hundredths digit.

D4

0.0073. The first two significant digits are 7 and 3; the next digit is 4.

Application and challenge answers

A1

5.2; 52; 0.052; 0.0052. Compare how the same digits change value.

A2

9.98; 0.0068; 4.70. The final zero in 4.70 communicates requested accuracy, although 4.7 is the same value.

A3

$20 \times 5 = 100$; exact 97.02. No: 970.2 is about ten times the estimate. An estimate checks scale; it does not prove every digit correct.

C1

Direct: 2.4. In stages: 2.45 then 2.5. The intermediate rounding changes the final result. Keep original values until the requested rounding step.

C2

2.0 m = 200 cm; 196 cm to the nearest 10 cm is also 200 cm. The rounding units match because 0.1 m = 10 cm.

Calculator guidance: After estimating A3, enter 19.8×4.9 . Expect 97.02. Compare with $20 \times 5 = 100$. Read the whole display; do not round intermediate values in a multi-step calculation unless instructed.

Independent evidence and next steps

P1

7.39 B1; decision digit 6 in the thousandths place B1. Teacher reviews the stated accuracy.

P2

$40 \times 2 = 80$ B1; 831.6 is about ten times too large, so unreasonable B1. An estimate supports a judgement, not an exact solution.

P3

Individual reflection. No marks; completion is not mastery.

F1

63; 5.28. Retrieve again in one week.

F2

About 60; it checks scale but cannot verify every digit. Prepare to choose a check that matches an error.

Retrieval answers: 38, 0.52, 0.07, 8.48, 0.0068, 90. 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

Scaling error: label a place-value chart and track each digit, rather than counting arbitrary zeros. Comparison error: pad trailing zeros. Rounding error: mark the retained place and decision digit. Estimate error: write the rounded expression before calculating. Recheck $0.47 \times 100 = 47$; $0.6 > 0.58$; 8.476 to 2 d.p. = 8.48; $39.6 \div 0.81 \approx 40 \div 0.8 = 50$.

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

Round 0.004976 to two significant figures and estimate 397×0.049 .

Answer and reasoning: 0.0050; estimate $400 \times 0.05 = 20$.

Deep challenge

A number rounds to 3.50 to two decimal places. Give its interval and explain the excluded endpoint.

Answer and reasoning: $3.495 \leq x < 3.505$; 3.505 rounds to 3.51.

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 L003: Place value, decimals and estimation

Objective: Use place value to scale and compare decimals, round to stated accuracy, and judge whether a calculation is reasonable.

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: Round 0.004976 to two significant figures and estimate 397×0.049 .

Deep challenge: A number rounds to 3.50 to two decimal places. Give its interval and explain the excluded endpoint.

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.