

Teacher guide and workbook answers

Pearson Edexcel GCSE Mathematics 1MA1 • L033

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

REACH FOR THE STAR | GCSE MATHEMATICS

Purpose and prerequisites

Calculate perimeters and areas of compound rectilinear shapes, triangles, parallelograms and trapezia with correct units.

Rectangle area; multiplication and fractions; L014 unit conversions; perpendicular height.

Selected specification content: G14 G16 G17. 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. Prepare rulers, compasses, protractors, tracing paper and the practical drawing sheets. Drawings and constructions require teacher review. 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.

A triangle has base 8 cm, perpendicular height 3 cm, sloping side 5 cm. Area? A 12, B 20, C 24 cm². Answer A: half of 8×3.

Recall and guided-practice answers

R1

20 cm. $2(6+4)$.

R2

24 cm^2 . 6×4 .

R3

100 mm^2 . 10×10 , not 10.

D1

52 cm^2 . $60 - 8$.

D2

35 cm^2 . $10 \times 7 \div 2$.

D3

45 cm^2 . 9×5 .

D4

28 cm^2 . $(5+9) \times 4 \div 2$.

Application and challenge answers

A1

40 cm^2 and 20 cm^2 . Triangle is half for equal base and height.

A2

52 cm^2 ; 32 cm. Removed boundary lengths are replaced by equal inset lengths; trace all six sides.

A3

34 m^2 ; 68 tiles. Divide area by coverage per tile.

C1

4×4 gives perimeter 16 area 16; 6×2 gives perimeter 16 area 12. Same boundary length does not fix area.

C2

False: perimeter stays 32 cm; removed $4+2$ is replaced by inset $4+2$. This refers to a corner cut, not any hole or notch.

Calculator guidance: Optional check: $(5+9) \times 4 \div 2 = 28$. Enter brackets round the sum. Estimate first; a triangle with the same base and height has half the parallelogram area.

Independent evidence and next steps

P1

$(6+10) \times 5 \div 2$ M1; 40 cm^2 A1. Use square units.

P2

48 cm^2 B1; 30 cm B1. Corner cut keeps perimeter here.

P3

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

F1

30 cm^2 . Half base times height.

F2

8 cm ; diameter is two radii. Centre lies halfway across diameter.

Retrieval answers: 24, 20, 35, 28, 52, 100. 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 sloping side is used as height, mark a right angle to the base. If internal cuts enter perimeter, trace with a finger. If cm^2 converts like cm , draw a 1 cm square as $10 \times 10 \text{ mm}$. Recheck 8×5 rectangle minus 3×2 corner.

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 activities

Allow 10–15 minutes for learners who have secured the main practice. Show a method, explain a check and justify your conclusion.

Stretch

A rectangle 12 cm by 8 cm has a 3 cm by 2 cm corner cut out. Find area and perimeter.

Answer and reasoning: Area = $96 - 6 = 90 \text{ cm}^2$; perimeter remains 40 cm for a corner notch.

Deep challenge

Two shapes each have area 36 cm^2 . Must their perimeters be equal? Give a counterexample.

Answer and reasoning: No. A 6×6 square has perimeter 24 cm; a 4×9 rectangle has perimeter 26 cm.

Ask for a fresh independent explanation before deciding that the method is secure.

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 L033: Perimeter and compound area

Objective: Calculate perimeters and areas of compound rectilinear shapes, triangles, parallelograms and trapezia with correct units.

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 the correct geometric fact, theorem, formula or transformation and used a clear diagram with appropriate labels and units.

Even Better If (EBI)

I will name the fact or theorem, show the substitution or construction step and check whether the size, direction and units of the result are reasonable.

Integrated stretch and deep challenge

Stretch: A rectangle 12 cm by 8 cm has a 3 cm by 2 cm corner cut out. Find area and perimeter.

Deep challenge: Two shapes each have area 36 cm^2 . Must their perimeters be equal? Give a counterexample.

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. Optional check: $(5+9) \times 4 \div 2 = 28$. Enter brackets round the sum. Estimate first; a triangle with the same base and height has half the parallelogram area..