2.11 Area and Perimeter: Test Pack

EDEXCEL 1MA1 · Calculator allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A rectangle is measured in centimetres.

(a) Write down a suitable unit for measuring the perimeter of the rectangle. **(1)**

.....

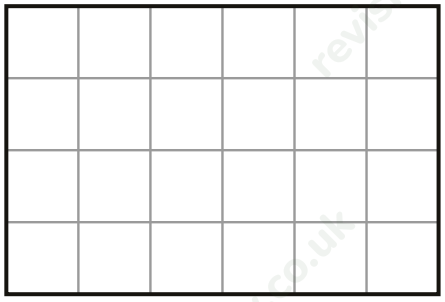
(b) Write down a suitable unit for measuring the area of the rectangle. **(1)**

.....

(Total for Question 1 is 2 marks)

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2 The rectangle below is drawn on a centimetre-squared grid. Each small square on the grid has a side length of 1 cm.



(a) Find the area of the rectangle by counting squares. **(1)**

.....

(b) Find the perimeter of the rectangle by counting the squares along the edge. **(1)**

.....

(Total for Question 2 is 2 marks)

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3 A P.E. teacher is measuring two things at school: the perimeter of the running track and the area of the sports hall floor.

(a) Circle the most sensible unit for measuring the perimeter of the running track. **(1)**

mm cm m km

(b) Circle the most sensible unit for measuring the area of the sports hall floor. **(1)**

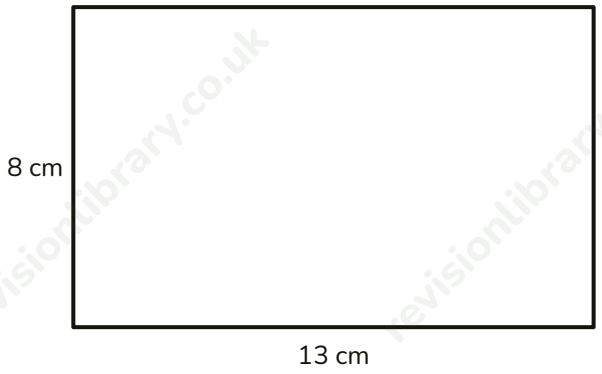
mm^2 cm^2 m^2 km^2

(Total for Question 3 is 2 marks)

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4 Work out the perimeter of a rectangle with length 13 cm and width 8 cm.

Diagram NOT accurately drawn



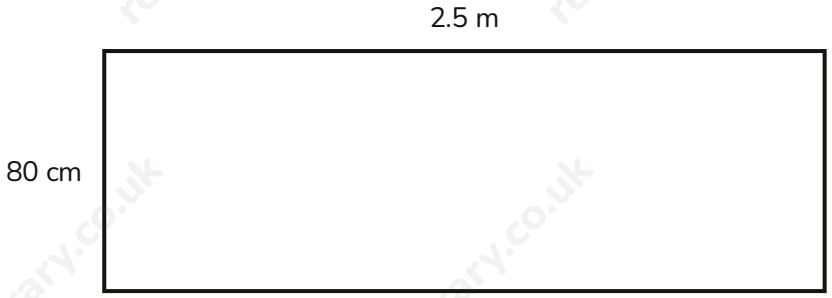
(Total for Question 4 is 1 mark)

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5 A rectangle has a length of 2.5 m and a width of 80 cm.

Work out the area of the rectangle in m^2.

Diagram NOT accurately drawn

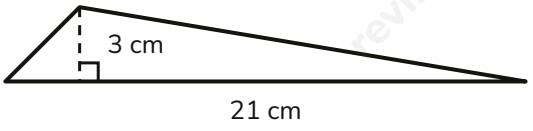


(Total for Question 5 is 3 marks)

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6 A triangle has a base of 21 cm and a perpendicular height of 3 cm. Work out its area.

Diagram NOT accurately drawn

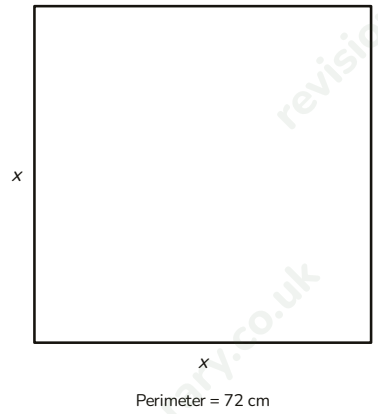


(Total for Question 6 is 2 marks)

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7 A square has a perimeter of 72 cm. Work out the area of the square.

Diagram NOT accurately drawn

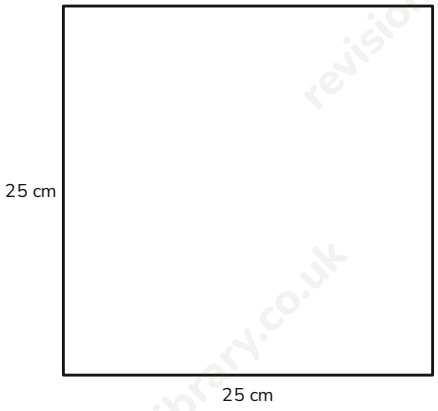


(Total for Question 7 is 3 marks)

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8 A room has a floor 5 m by 3 m. It is covered with square tiles of side 25 cm. Work out how many tiles are needed to cover the floor completely.

Diagram NOT accurately drawn



(Total for Question 8 is 3 marks)

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9 Amara is choosing between two flower beds for her garden.

Flower bed A is rectangular, measuring 5 m by 3 m.
Flower bed B is triangular, with a base of 8 m and a perpendicular height of 4 m.

Which flower bed has the greater area? You must show your working.

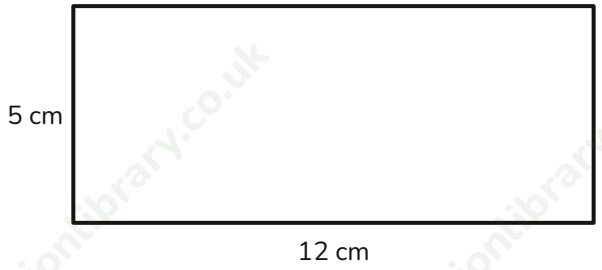
(Total for Question 9 is 3 marks)

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10 To find the area of a rectangle with length 12 cm and width 5 cm, a student wrote:

Area = 12 + 5 = 17 cm²

Diagram NOT accurately drawn



(a) Explain the mistake in the student's method. **(1)**

(b) Work out the correct area of the rectangle. **(1)**

(Total for Question 10 is 2 marks)

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11 A rectangular lawn measures 7.5 m by 4 m.

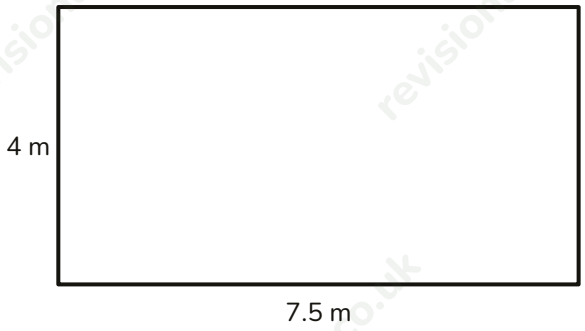
Show that the area of the lawn is 30 m².

(Total for Question 11 is 2 marks)

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12 Calculate the area of a rectangle with length 7.5 m and width 4 m.

Diagram NOT accurately drawn



(Total for Question 12 is 1 mark)

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13 The table shows the base and perpendicular height of three parallelograms.

Parallelogram	Base (cm)	Height (cm)
P	8	5
Q	12	7
R	15	4

Work out the area of each parallelogram.

(a) Area of parallelogram P. **(1)**

.....

(b) Area of parallelogram Q. **(1)**

.....

(c) Area of parallelogram R. **(1)**

.....

(Total for Question 13 is 3 marks)

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14 A rectangular field has an area of 108 m². The field is 12 m wide. Work out the length of the field.

(Total for Question 14 is 2 marks)

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15 A rectangular paddock measures 20 m by 15 m. The paddock needs fencing all the way around, except for a 3 m wide gate opening on one of the 20 m sides. Fencing costs £7.25 per metre.

Work out the total cost of the fencing.

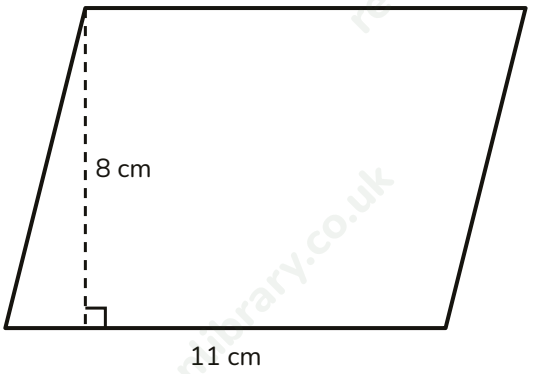
(Total for Question 15 is 4 marks)

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16 A student's working to find the area of a parallelogram with base 11 cm and perpendicular height 8 cm is shown below.

Area = 11 + 8 = 19 cm²

Diagram NOT accurately drawn



(a) Identify the error in the student's method. **(1)**

(b) Work out the correct area of the parallelogram. **(2)**

.....

(Total for Question 16 is 3 marks)

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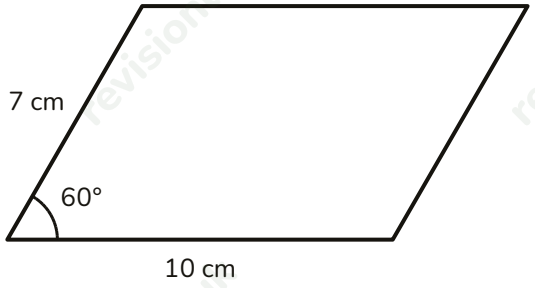
17 A triangular flower bed has a right angle between two sides of length 9 m and 12 m. Edging for the flower bed costs £3 per metre. Work out the total cost of edging the flower bed.

(Total for Question 17 is 3 marks)

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18 Find the exact area of a parallelogram with adjacent sides 10 cm and 7 cm with included angle 60 degrees. Give your answer in exact form.

Diagram NOT accurately drawn



(Total for Question 18 is 2 marks)

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Mark scheme · 2.11 Area and Perimeter: Test Pack

Question 1

(a) cm (or centimetres) oe **B1**

(a) Answer: cm

(b) cm^2 (or square centimetres) oe **B1**

(b) Answer: cm^2

Question 2

(a) 24 cao **B1**

(a) Answer: 24 cm^2

(b) 20 cao **B1**

(b) Answer: 20 cm

Question 3

(a) m circled oe **B1**

(a) Answer: m

(b) m^2 circled oe **B1**

(b) Answer: m^2

Question 4

Perimeter = 2(13 + 8) = 42 cm cao **B1**

Answer: 42 cm

Question 5

80 cm = 0.8 m oe **M1**

2.5 x 0.8 **M1**

2 cao **A1**

Answer: 2 m^2

Question 6

1/2 x 21 x 3 **M1**

31.5 cm^2 cao **A1**

Answer: 31.5 cm^2

Question 7

72 / 4 **M1**

18 x 18 **M1**

324 cm^2 cao **A1**

Answer: 324 cm^2

Question 8

converts to cm or tile area 625 cm^2 or 0.0625 m^2 **M1**

divides floor area by tile area **M1**

240 cao **A1**

Answer: 240

Question 9

5 x 3 = 15 **M1**

0.5 x 8 x 4 = 16 **M1**

Flower bed B, since 16 > 15, dependent on both areas correct **A1**

Answer: Flower bed B (16 m^2 compared with 15 m^2)

Question 10

(a) states the student added the length and width instead of multiplying them oe **B1**

(a) Answer: The student added the length and width instead of multiplying them.

(b) 60 cao **B1**

(b) Answer: 60 cm^2

Question 11

7.5 x 4 oe, method shown **M1**

30 (cso), dependent on correct working shown **A1**

Answer: 30 m^2 (shown)

Question 12

Area = 7.5 × 4 = 30 m^2 cao **B1**

Answer: 30 m^2

Question 13

(a) 40 cm^2 cao **B1**

(a) Answer: 40 cm^2

(b) 84 cm^2 cao **B1**

(b) Answer: 84 cm^2

(c) 60 cm^2 cao **B1**

(c) Answer: 60 cm^2

Question 14

Use length = area / width = 108 / 12 **M1**

9 m cao **A1**

Answer: 9 m

Question 15

2(20 + 15) = 70 oe **M1**

70 - 3 = 67 oe **M1**

67 x 7.25, ft their length **M1**

485.75 (pounds) cao **A1**

Answer: £485.75

Question 16

(a) States the student added the base and height instead of multiplying them (oe) **B1**

(a) Answer: The base and height were added instead of multiplied

(b) Area = base x height = 11 x 8 **M1**

(b) 88 cm^2 cao **A1**

(b) Answer: 88 cm^2

Question 17

Use Pythagoras to find the third side: $\sqrt{9^2 + 12^2} = \sqrt{225}$ **M1**

Perimeter = 9 + 12 + 15 (ft their third side) **M1**

Total cost = 36 x 3 = £108 cao **A1**

Answer: £108

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Question 18

Use area = ab sin(θ) = 10 × 7 × sin 60 degrees **M1**

$35\sqrt{3}$ cm^2 cao **A1**

Answer: $35\sqrt{3}$ cm^2

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