



3.18D Area of Compound Shapes: Fluency and Exam Drill

EDEXCEL Edexcel 1MA1 · Calculator allowed · about 60 minutes

Total Marks

--

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1** Work out the area of a rectangle with length 8 cm and width 5 cm.

(Total for Question 1 is 1 mark)

- 2** Work out the area of a square with side length 7 cm.

(Total for Question 2 is 1 mark)

- 3** An L-shaped figure is made from two rectangles. One rectangle is 6 cm by 4 cm and the other is 3 cm by 4 cm. Work out the total area of the L-shape.

(Total for Question 3 is 2 marks)

- 4** A rectangle measures 10 cm by 6 cm. A small rectangle of size 3 cm by 2 cm has been removed from one corner. Work out the area of the remaining shape.

(Total for Question 4 is 2 marks)

- 5** A rectangle is 12 cm by 5 cm. A square of side 3 cm is removed from one corner. Work out the area of the shape left.

(Total for Question 5 is 2 marks)

- 6** The shape below is made from two rectangles joined together. Rectangle A is 8 cm by 5 cm and rectangle B is 5 cm by 3 cm. Work out the total area of the shape.

(Total for Question 6 is 3 marks)

- 7** A composite shape is made from two rectangles side by side. Both rectangles have height 6 cm. The left rectangle has width 4 cm. The total area of the composite shape is 60 cm^2 . Find the width of the right rectangle.

(Total for Question 7 is 3 marks)

- 8** A rectangle measures 12 cm by 9 cm. A smaller rectangle of size 4 cm by 3 cm inside it is shaded. Work out the area of the unshaded part of the rectangle.

(Total for Question 8 is 2 marks)

- 9** A composite shape is formed from three rectangles. Rectangle A is 10 cm by 4 cm, rectangle B is 4 cm by 6 cm attached to the top of A at the left, and rectangle C is 6 cm by 3 cm attached to the right of A. Work out the total area of the composite shape.

(Total for Question 9 is 4 marks)

- 10** A rectangle measures 16 cm by 9 cm. A smaller rectangle 5 cm by 4 cm is removed from one corner. Calculate the area of the remaining shape.

(Total for Question 10 is 3 marks)

- 11** A rectangular playground is 20 m by 12 m. A paved patio of 6 m by 5 m occupies one corner. Work out the area of the playground that is not paved.

(Total for Question 11 is 3 marks)

- 12** A rectangle is 14 cm by 9 cm. A smaller rectangle of height 4 cm and width x cm is removed from one side. The area of the remaining shape is 98 cm^2 . Find x .

(Total for Question 12 is 3 marks)

- 13** Work out the area of a rectangle with sides 6.5 cm and 4 cm.

(Total for Question 13 is 2 marks)

- 14** A large rectangle is 18 cm by 10 cm. A central rectangle of 8 cm by 6 cm is not shaded. Find the area of the shaded part of the large rectangle.

(Total for Question 14 is 3 marks)

- 15** A cross-shaped figure is formed by a central square of side 6 cm and four identical rectangular arms attached to the middle of each side of the square. Each arm is 2 cm by 4 cm. Work out the total area of the cross.

(Total for Question 15 is 3 marks)

- 16** A rectangular garden is 14 m by 10 m. A path of uniform width x metres runs all the way around the inside of the garden, leaving a rectangular lawn in the centre. The area of the lawn is 84 m^2 . Find the width of the path. Give the exact value and a decimal approximation to 2 decimal places.

(Total for Question 16 is 5 marks)

Mark scheme · 3.18D Area of Compound Shapes: Fluency and Exam Drill

Question 1

- **B1** 40 cm^2 cao
- **Answer: 40 cm^2 (or 40)**

Question 2

- **B1** 49 cm^2 cao
- **Answer: 49 cm^2 (or 49)**

Question 3

- **M1** find areas of the two rectangles, 6×4 and 3×4 , or equivalent method
- **A1** 36 cm^2 cao ($24 + 12 = 36$)
- **Answer: 36 cm^2**

Question 4

- **M1** $60 - 3 \times 2$, or equivalent subtraction method
- **A1** 54 cm^2 cao
- **Answer: 54 cm^2**

Question 5

- **M1** $60 - 3 \times 3$, or equivalent subtraction method
- **A1** 51 cm^2 cao
- **Answer: 51 cm^2**

Question 6

- **M1** find area of rectangle A ($8 \times 5 = 40$) or evidence of splitting
- **M1** find area of rectangle B ($5 \times 3 = 15$)
- **A1** 55 cm^2 cao
- **Answer: 55 cm^2**

Question 7

- **M1** form equation $(4 + x) \times 6 = 60$ or equivalent
- **M1** solve for x: $6(4 + x) = 60 \rightarrow 4 + x = 10$
- **A1** $x = 6 \text{ cm}$ cao
- **Answer: 6 cm**

Question 8

- **M1** $108 - 4 \times 3$, or equivalent subtraction
- **A1** 96 cm^2 cao
- **Answer: 96 cm^2**

Question 9

- **M1** area A = $10 \times 4 = 40$ shown
- **M1** area B = $4 \times 6 = 24$ shown
- **M1** area C = $6 \times 3 = 18$ shown
- **A1** total area = $40 + 24 + 18 = 82 \text{ cm}^2$ cao
- **Answer: 82 cm^2**

Question 10

- **M1** use $16 \times 9 - 5 \times 4$ or equivalent method
- **M1** compute areas: 144 and 20
- **A1** 124 cm^2 cao
- **Answer: 124 cm^2**

Question 11

- **M1** use $20 \times 12 - 6 \times 5$ or equivalent
- **M1** compute $240 - 30$
- **A1** 210 m^2 cao
- **Answer: 210 m^2**

Question 12

- **M1** form equation $14 \times 9 - 4x = 98$ or equivalent
- **M1** solve to get $126 - 4x = 98 \rightarrow 4x = 28$
- **A1** $x = 7 \text{ cm}$ cao
- **Answer: 7 cm**

Question 13

- **M1** multiply 6.5×4 or show method
- **A1** 26.0 cm^2 cao
- **Answer: 26.0 cm^2**

Question 14

- **M1** use $18 \times 10 - 8 \times 6$ or equivalent subtraction method
- **M1** compute $180 - 48$
- **A1** 132 cm^2 cao
- **Answer: 132 cm^2**

Question 15

- **M1** area central square = $6 \times 6 = 36$ or equivalent
- **M1** area for four arms = $4 \times (2 \times 4) = 32$ or equivalent
- **A1** total = $36 + 32 = 68 \text{ cm}^2$ cao
- **Answer: 68 cm^2**

Question 16

- **M1** form equation $(14 - 2x)(10 - 2x) = 84$ or equivalent
- **M1** expand/rearrange to a quadratic: $4x^2 - 48x + 56 = 0$ (or divide by 4: $x^2 - 12x + 14 = 0$)
- **M1** use quadratic formula to find $x = 6 \pm \sqrt{22}$ (evidence of correct substitution)
- **A1** exact width $x = 6 - \sqrt{22} \text{ m}$ cao (smaller positive root)
- **A1** decimal answer x approx 1.31 m awrt ($6 - \sqrt{22}$ approx 1.3096...)
- **Answer: Exact: $x = 6 - \sqrt{22} \text{ m}$. Decimal: x approx 1.31 m (to 2 d.p.)**