



2.11D Area and Perimeter: Fluency and Exam Drill

EDEXCEL Edexcel 1MA1 · Calculator allowed · about 50 minutes

Total Marks

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Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

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

(Total for Question 1 is 1 mark)

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

(Total for Question 2 is 1 mark)

- 3 A rectangle has a perimeter of 50 cm. One side is 13 cm. Work out the length of the other side.

(Total for Question 3 is 2 marks)

- 4 Work out the area of a triangle with base 10 cm and height 6 cm.

(Total for Question 4 is 1 mark)

- 5 The area of a triangle is 45 cm^2 and its base is 9 cm. Work out the height of the triangle.

(Total for Question 5 is 2 marks)

- 6** A right-angled triangle has side lengths 6 cm, 8 cm and 10 cm. Work out its perimeter.

(Total for Question 6 is 1 mark)

- 7** Calculate the area of a parallelogram with base 12 cm and perpendicular height 5 cm.

(Total for Question 7 is 1 mark)

- 8** A parallelogram has area 84 cm^2 and its perpendicular height is 7 cm. Work out the length of the base.

(Total for Question 8 is 2 marks)

- 9** Work out the perimeter of a trapezium with parallel sides 14 cm and 8 cm and non-parallel sides 5 cm and 7 cm.

(Total for Question 9 is 1 mark)

- 10** Calculate the area of a trapezium with parallel sides 8 cm and 14 cm and height 5 cm.

(Total for Question 10 is 2 marks)

- 11** A rectangular garden measures 15 m by 8 m. A uniform path of width x m is laid around the inside so that the lawn that remains has area 66 m^2 less than the original garden. Work out x , giving your answer correct to 2 decimal places.

(Total for Question 11 is 4 marks)

- 12** The area of a triangle is 72 cm^2 and its perpendicular height is 8 cm. Work out the length of the base.

(Total for Question 12 is 2 marks)

- 13** A composite shape is made of a rectangle 10 cm by 6 cm with an isosceles triangle on one 10 cm side. The triangle has base 10 cm and height 4 cm. Work out the total area of the shape.

(Total for Question 13 is 2 marks)

- 14** A trapezium has parallel sides 9 cm and 15 cm. The two non-parallel sides are equal in length. The perimeter is 50 cm. Work out the length of each non-parallel side.

(Total for Question 14 is 2 marks)

- 15** 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.

(Total for Question 15 is 2 marks)

- 16** A triangle has side lengths 13 cm, 14 cm and 15 cm. Work out the area of the triangle.

(Total for Question 16 is 3 marks)

Mark scheme · 2.11D Area and Perimeter: Fluency and Exam Drill

Question 1

- **B1** Perimeter = $2(13 + 8) = 42$ cm cao
- **Answer: 42 cm**

Question 2

- **B1** Area = $7.5 \times 4 = 30$ m² cao
- **Answer: 30 m²**

Question 3

- **M1** Use $2(a + b) = 50$ so $a + b = 25$, then subtract 13 from 25
- **A1** 12 cm cao
- **Answer: 12 cm**

Question 4

- **B1** Area = $\frac{1}{2} \times 10 \times 6 = 30$ cm² cao
- **Answer: 30 cm²**

Question 5

- **M1** Use $45 = \frac{1}{2} \times 9 \times h$ so $h = (2 \times 45) / 9$
- **A1** 10 cm cao
- **Answer: 10 cm**

Question 6

- **B1** Perimeter = $6 + 8 + 10 = 24$ cm cao
- **Answer: 24 cm**

Question 7

- **B1** Area = base $\times$ height = $12 \times 5 = 60$ cm² cao
- **Answer: 60 cm²**

Question 8

- **M1** Use base = area / height = $84 / 7$
- **A1** 12 cm cao
- **Answer: 12 cm**

Question 9

- **B1** Perimeter = $14 + 8 + 5 + 7 = 34$ cm cao
- **Answer: 34 cm**

Question 10

- **M1** Use area = $\frac{1}{2} \times (\text{sum of parallel sides}) \times \text{height} = \frac{1}{2} \times (8 + 14) \times 5$
- **A1** 55 cm² cao
- **Answer: 55 cm²**

Question 11

- **M1** Write inner area = $(15 - 2x)(8 - 2x)$ and set equal to $120 - 66 = 54$
- **M1** Expand to form quadratic: $4x^2 - 46x + 66 = 0$ (or equivalent)
- **M1** Use quadratic formula to find positive solution for x
- **A1** $x = 1.68$ m awrt (1.6803...)
- **Answer: 1.68 m**

Question 12

- **M1** Use $\text{base} = 2 \times \text{area} / \text{height} = 2 \times 72 / 8$
- **A1** 18 cm
- **Answer: 18 cm**

Question 13

- **M1** Area rectangle = $10 \times 6 = 60$; area triangle = $1/2 \times 10 \times 4 = 20$
- **A1** Total area = 80 cm^2
- **Answer: 80 cm^2**

Question 14

- **M1** Let each non-parallel side be s : $9 + 15 + 2s = 50$ so $2s = 26$
- **A1** $s = 13 \text{ cm}$
- **Answer: 13 cm**

Question 15

- **M1** Use $\text{area} = ab \sin(\theta) = 10 \times 7 \times \sin 60^\circ$
- **A1** $35\sqrt{3} \text{ cm}^2$
- **Answer: $35\sqrt{3} \text{ cm}^2$**

Question 16

- **M1** Compute semiperimeter $s = (13 + 14 + 15) / 2 = 21$
- **M1** Substitute into Heron: $\text{area} = \sqrt{21(21-13)(21-14)(21-15)}$
- **A1** 84 cm^2
- **Answer: 84 cm^2**