4.8 Area of Parallelograms, Trapezia and Compound Shapes: 2-hour Pack

Calculators not allowed · about 120 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

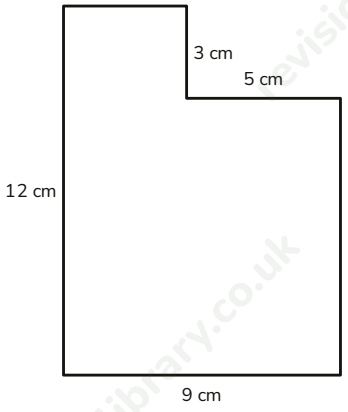
1 A floor is 12 m long and 3 m wide. Carpet costs £12 per square metre. Work out the total cost of carpeting the floor.

(3)

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2 An L-shape is made by taking a 9 cm by 12 cm rectangle and cutting a 5 cm by 3 cm rectangle out of one corner.
Work out the area of the L-shape.

Diagram NOT accurately drawn



(3)

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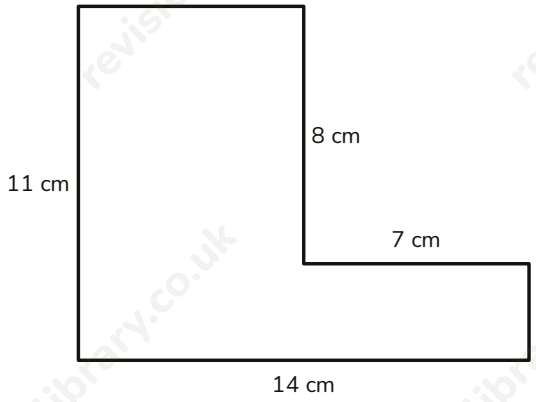
3 A floor is 12 m long and 5 m wide. Carpet costs £9 per square metre. Work out the total cost of carpeting the floor.

(3)

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4 An L-shape is made by taking a 14 cm by 11 cm rectangle and cutting a 7 cm by 8 cm rectangle out of one corner.
Work out the perimeter of the L-shape.

Diagram NOT accurately drawn

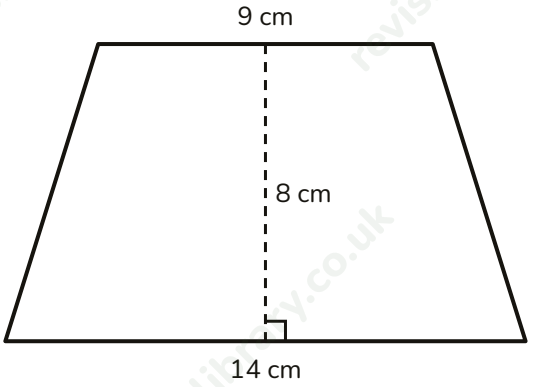


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5 A trapezium has parallel sides of 9 cm and 14 cm. The distance between the parallel sides is 8 cm. Work out the area of the trapezium.

Diagram NOT accurately drawn

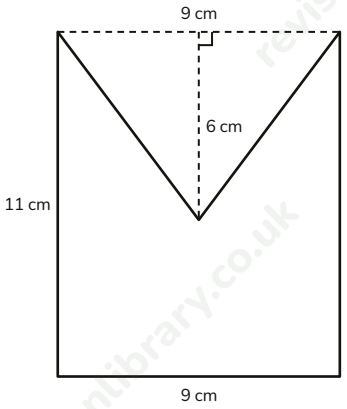


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6 A 9 cm by 11 cm rectangle has a triangle cut out of one end. The triangle has base 9 cm and perpendicular height 6 cm. Work out the area that remains.

Diagram NOT accurately drawn



(3)

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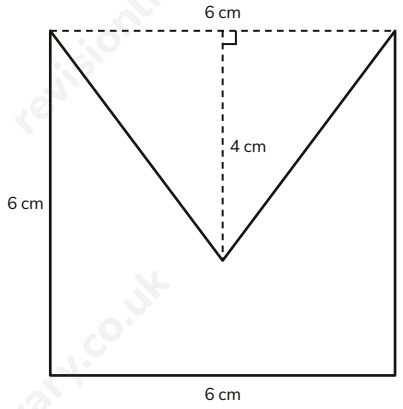
7 A wall is 4 m by 6 m. One tin of paint covers 6 m² and costs £13. Work out the cost of the paint needed. Only whole tins can be bought.

(3)

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8 A 6 cm by 6 cm rectangle has a triangle cut out of one end. The triangle has base 6 cm and perpendicular height 4 cm. Work out the area that remains.

Diagram NOT accurately drawn

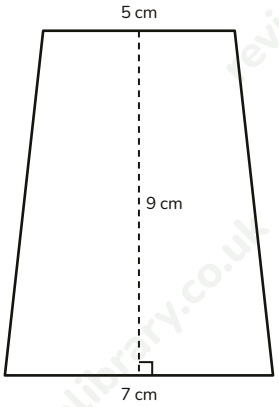


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9 A trapezium has parallel sides of 5 cm and 7 cm. The distance between the parallel sides is 9 cm. Work out the area of the trapezium.

Diagram NOT accurately drawn

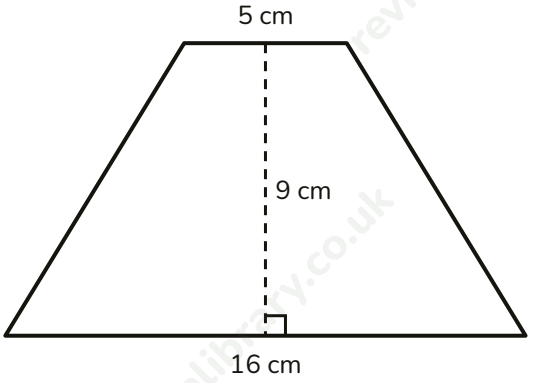


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10 A trapezium has parallel sides of 5 cm and 16 cm. The distance between the parallel sides is 9 cm. Work out the area of the trapezium.

Diagram NOT accurately drawn

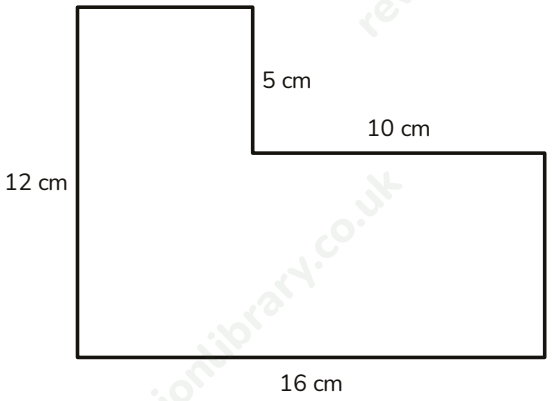


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11 An L-shape is made by taking a 16 cm by 12 cm rectangle and cutting a 10 cm by 5 cm rectangle out of one corner.
Work out the perimeter of the L-shape.

Diagram NOT accurately drawn



(3)

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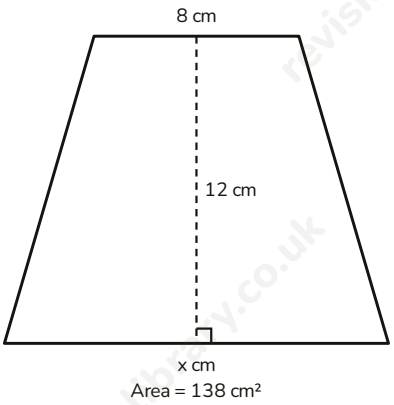
12 A shape is made from a rectangle 11 cm by 12 cm with a triangle on top. The base of the triangle is the 11 cm side and its perpendicular height is 6 cm. Work out the total area of the shape.

(4)

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13 A trapezium has area 138 cm². Its parallel sides are 8 cm and x cm, and the distance between them is 12 cm. Work out the value of x.

Diagram NOT accurately drawn



(4)

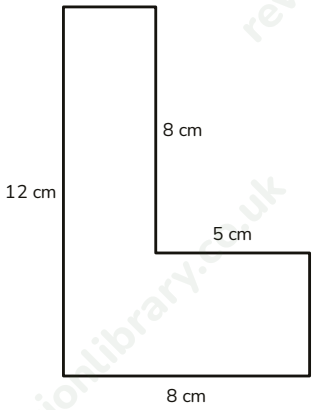
14 A shape is made from a rectangle 6 cm by 11 cm with a triangle on top. The base of the triangle is the 6 cm side and its perpendicular height is 3 cm. Work out the total area of the shape.

(4)

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15 An L-shape is made by taking a 8 cm by 12 cm rectangle and cutting a 5 cm by 8 cm rectangle out of one corner.
Work out the perimeter of the L-shape.

Diagram NOT accurately drawn

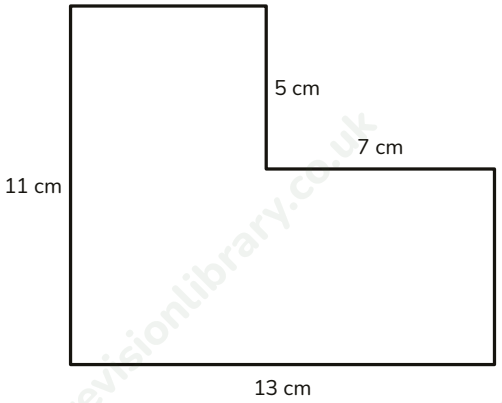


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16 An L-shape is made by taking a 13 cm by 11 cm rectangle and cutting a 7 cm by 5 cm rectangle out of one corner.
Work out the area of the L-shape.

Diagram NOT accurately drawn

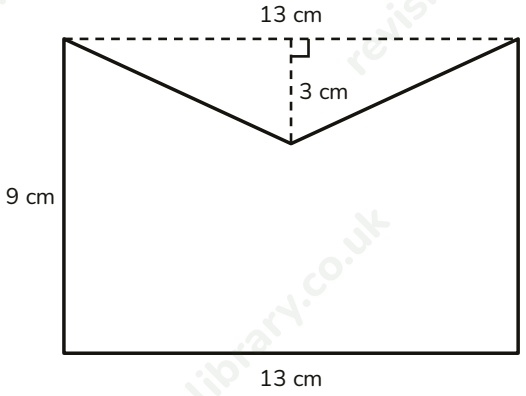


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17 A 13 cm by 9 cm rectangle has a triangle cut out of one end. The triangle has base 13 cm and perpendicular height 3 cm. Work out the area that remains.

Diagram NOT accurately drawn

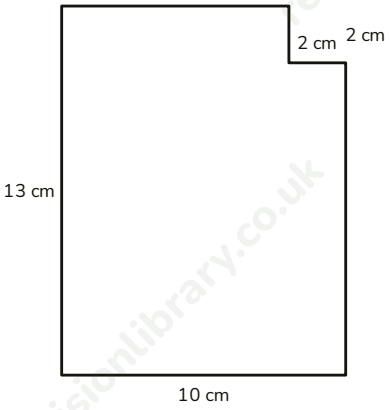


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18 An L-shape is made by taking a 10 cm by 13 cm rectangle and cutting a 2 cm by 2 cm rectangle out of one corner.
Work out the area of the L-shape.

Diagram NOT accurately drawn

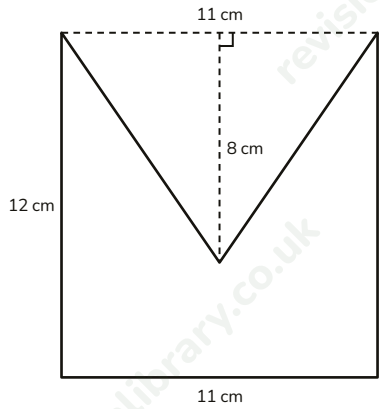


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19 A 11 cm by 12 cm rectangle has a triangle cut out of one end. The triangle has base 11 cm and perpendicular height 8 cm. Work out the area that remains.

Diagram NOT accurately drawn



(3)

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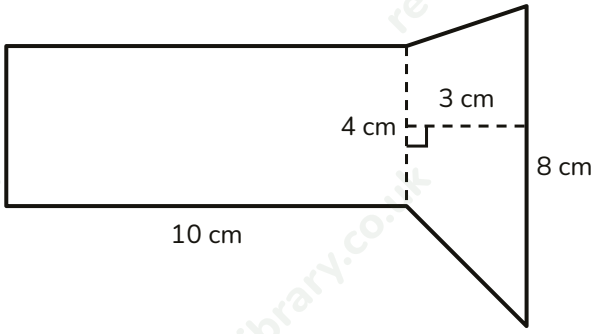
20 A floor is 12 m long and 6 m wide. Carpet costs £3 per square metre. Work out the total cost of carpeting the floor.

(3)

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21 A shape is made from a rectangle 10 cm by 4 cm and a trapezium attached to one 4 cm side. The trapezium has parallel sides 4 cm and 8 cm and height 3 cm. Find the total area of the shape.

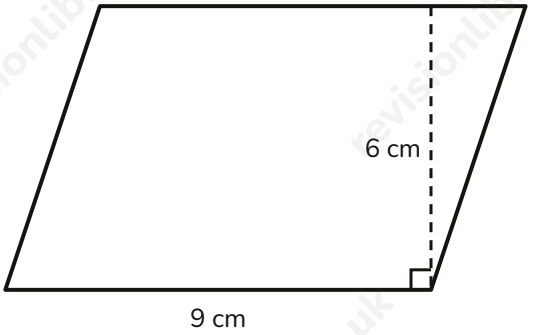
Diagram NOT accurately drawn



(3)

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22 A parallelogram has base 9 cm and height 6 cm. Work out its area.

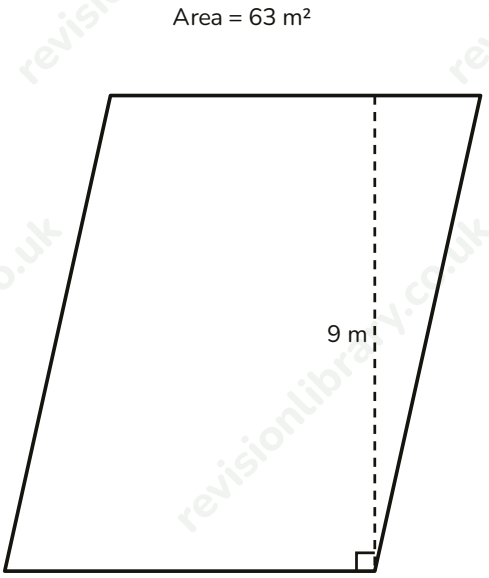


(1)

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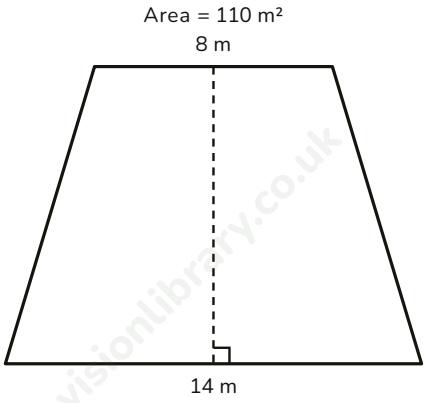
23 A rectangle has area 63 m² and width 7 m. A parallelogram has the same area and height 9 m. Work out the base of the parallelogram.





(2)

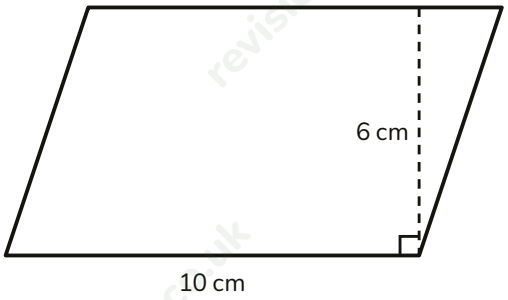
24 A trapezium has parallel sides 8 m and 14 m and area 110 m². Work out its height.

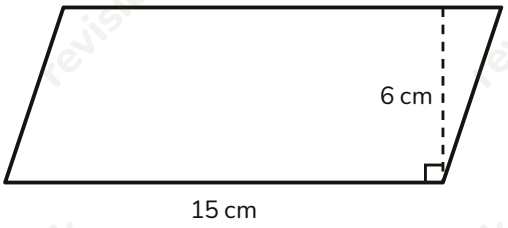


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25 A parallelogram has base 10 cm and height 6 cm. If the base is increased to 15 cm and the height stays the same, work out the new area.

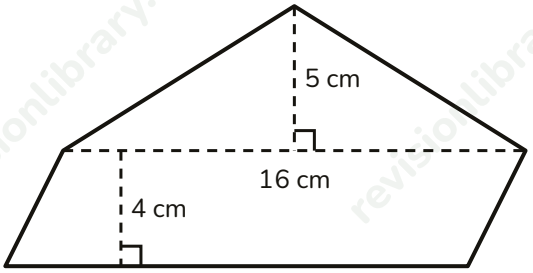




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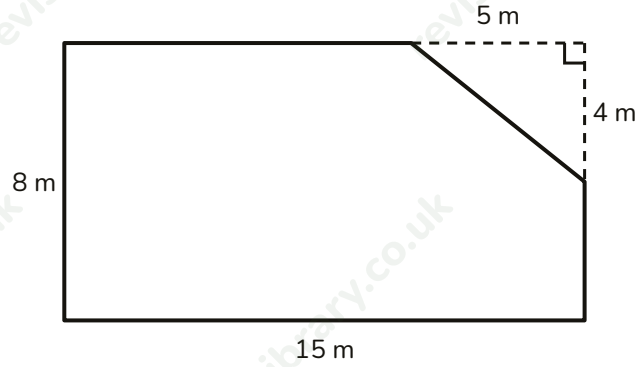
26 A compound shape consists of a parallelogram with base 16 cm and height 4 cm, and a triangle on top with base 16 cm and height 5 cm. Work out the total area of the shape.



(3)

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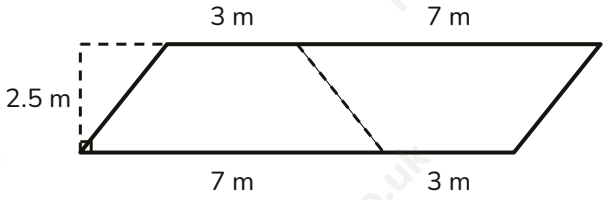
27 A rectangle 15 m by 8 m has a right-angled triangle removed from one corner. The triangle has legs 5 m and 4 m (the right angle is at the corner). Work out the area remaining after the triangle is removed.



(3)

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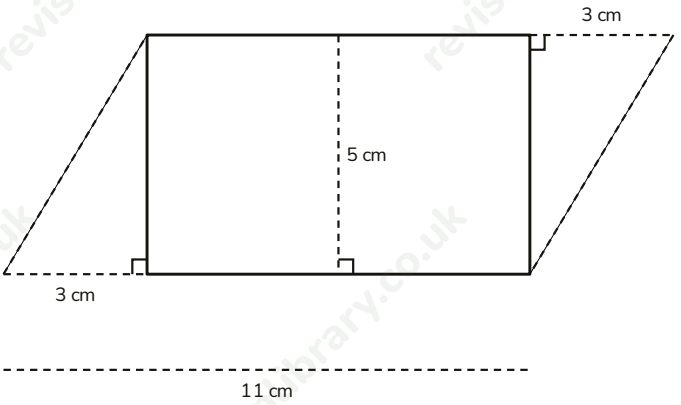
28 A trapezium-shaped window has parallel sides 3 m and 7 m and height 2.5 m. A second, identical trapezium is placed upside down against the first to form a parallelogram. Work out the area of the parallelogram formed, and hence state the area of one trapezium window.



(3)

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29 A compound shape is made from a parallelogram with base 11 cm and height 5 cm, with two congruent right-angled triangles removed from either end, each with base 3 cm and height 5 cm. Work out the area of the remaining shape.

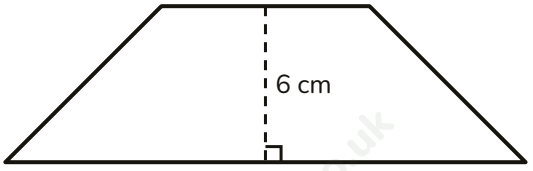


(3)

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30 Stretch question. A trapezium has parallel sides in the ratio 2:5 and height 6 cm. Its area is 84 cm². Work out the lengths of the two parallel sides.

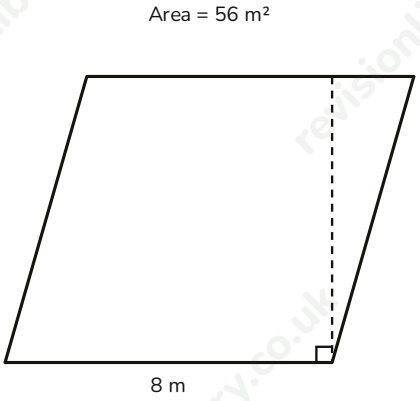
Parallel sides 2:5
Area = 84 cm²



(4)

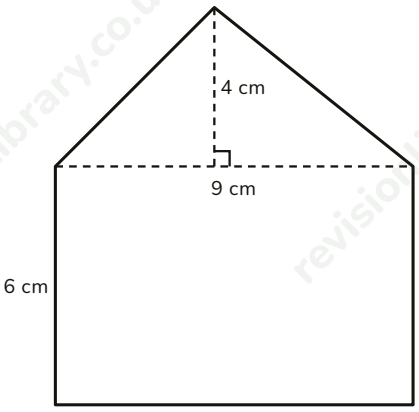
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31 A parallelogram has base 8 m and area 56 m². Work out the height.



(1)

32 A compound shape is made of a rectangle 9 cm by 6 cm and a triangle with base 9 cm and height 4 cm attached along the 9 cm side. Work out the total area.



(2)

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Mark scheme · 4.8 Area of Parallelograms, Trapezia and Compound Shapes: 2-hour Pack

Question 1

12 x 3 = 36	M1
36 x 12	M1
£432 cao	A1

Answer: **£432**

Question 2

9 x 12 = 108	M1
5 x 3 = 15	M1
93 cm² cao	A1

Answer: **93 cm^2**

Question 3

12 x 5 = 60	M1
60 x 9	M1
£540 cao	A1

Answer: **£540**

Question 4

identifies that the perimeter equals that of the enclosing rectangle	M1
2 x (14 + 11)	M1
50 cm cao	A1

Answer: **50 cm**

Question 5

9 + 14 = 23	M1
1/2 x 23 x 8	M1
92 cm² cao	A1

Answer: **92 cm^2**

Question 6

9 x 11	M1
99 - 1/2 x 9 x 6	M1
72 cm² cao	A1

Answer: **72 cm^2**

Question 7

24 ÷ 6	M1
rounds up to 4 tins	M1
£52 cao	A1

Answer: **£52**

Question 8

6 x 6	M1
36 - 1/2 x 6 x 4	M1
24 cm² cao	A1

Answer: **24 cm^2**

Question 9

5 + 7 = 12	M1
1/2 x 12 x 9	M1
54 cm² cao	A1

Answer: **54 cm^2**

Question 10

5 + 16 = 21	M1
1/2 x 21 x 9	M1
94.5 cm² cao	A1

Answer: **94.5 cm^2**

Question 11

identifies that the perimeter equals that of the enclosing rectangle	M1
2 x (16 + 12)	M1
56 cm cao	A1

Answer: **56 cm**

Question 12

11 x 12 = 132	M1
1/2 x 11 x 6	M1
adds the two areas	M1
165 cm² cao	A1

Answer: **165 cm^2**

Question 13

138 = 1/2 (x + 8) x 12	M1
x + 8 = 23	M1
isolates x	M1
15 cm cao	A1

Answer: **15 cm**

Question 14

6 x 11 = 66	M1
1/2 x 6 x 3	M1
adds the two areas	M1
75 cm² cao	A1

Answer: **75 cm^2**

Question 15

identifies that the perimeter equals that of the enclosing rectangle	M1
2 x (8 + 12)	M1
40 cm cao	A1

Answer: **40 cm**

Question 16

13 x 11 = 143	M1
7 x 5 = 35	M1
108 cm² cao	A1

Answer: **108 cm^2**

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Question 17

13 x 9	M1
117 - 1/2 x 13 x 3	M1
97.5 cm² cao	A1

Answer: **97.5 cm²**

Question 18

10 x 13 = 130	M1
2 x 2 = 4	M1
126 cm² cao	A1

Answer: **126 cm²**

Question 19

11 x 12	M1
132 - 1/2 x 11 x 8	M1
88 cm² cao	A1

Answer: **88 cm²**

Question 20

12 x 6 = 72	M1
72 x 3	M1
£216 cao	A1

Answer: **£216**

Question 21

Area rectangle 10 x 4 = 40 and area trapezium (4+8)/2 x 3 = 18 calculated	M1
Both areas added 40 + 18	M1
58 cm² cao	A1

Answer: **58 cm²**

Question 22

54 cm² cao	B1

Answer: **54 cm²**

Question 23

uses base = area / height = 63 / 9	M1
7 m cao	A1

Answer: **7 m**

Question 24

uses height = 2 x area / (a + b)	M1
10 m cao	A1

Answer: **10 m**

Question 25

uses new area = 15 x 6	M1
90 cm² cao	A1

Answer: **90 cm²**

Question 26

finds parallelogram area = 64 cm²	M1
finds triangle area = 40 cm²	M1
total area = 104 cm² cao	A1

Answer: **104 cm²**

Question 27

finds rectangle area = 120 m²	M1
finds triangle area = 10 m²	M1
remaining area = 110 m² cao	A1

Answer: **110 m²**

Question 28

uses parallelogram area = (3 + 7) x 2.5	M1
parallelogram area = 25 m²	M1
one trapezium = 12.5 m² cao	A1

Answer: **Parallelogram 25 m²; one trapezium 12.5 m²**

Question 29

finds parallelogram area = 55 cm²	M1
finds total triangle area removed = 15 cm²	M1
remaining area = 40 cm² cao	A1

Answer: **40 cm²**

Question 30

sets sides as 2k and 5k and forms (2k + 5k)/2 x 6 = 84	M1
simplifies to 21k = 84	M1
solves k = 4	M1
sides are 8 cm and 20 cm cao	A1

Answer: **8 cm and 20 cm**

Question 31

7 m cao	B1

Answer: **7 m**

Question 32

finds rectangle area 54 cm² and triangle area 18 cm²	M1
72 cm² cao	A1

Answer: **72 cm²**

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