4.8 Area of Parallelograms, Trapezia and Compound Shapes: Test Pack

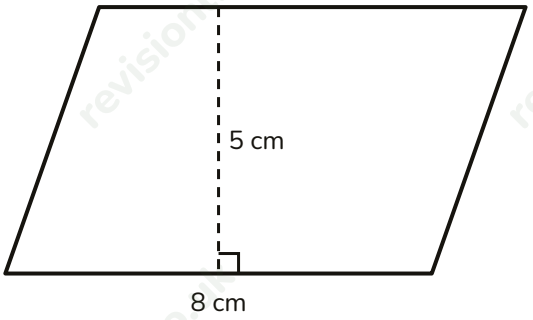
Calculators not allowed · about 60 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 A parallelogram has base 8 cm and height 5 cm. Work out its area.

Diagram NOT accurately drawn



(1)

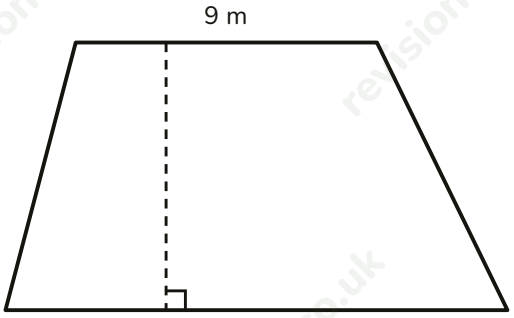
2 A small parallelogram has area 2500 cm². Express this area in m^2.

(2)

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3 A trapezium has parallel sides 9 m and 15 m and area 96 m². Work out its height.

Diagram NOT accurately drawn



Area = 96 m²

(2)

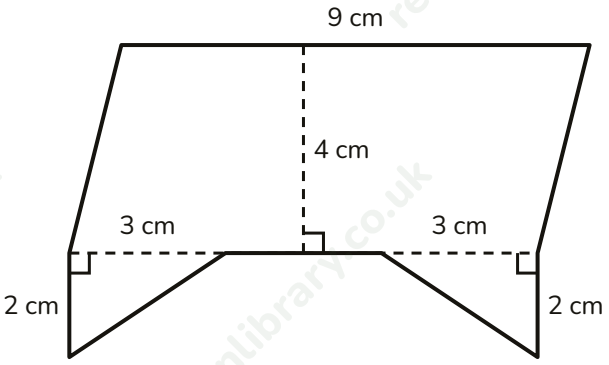
4 Explain why the area of a trapezium equals the average of the two parallel sides multiplied by the height. You may give a short diagram description or words.

(3)

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5 Stretch: A compound shape is made from a parallelogram with base 9 cm and height 4 cm, and two congruent right triangles each with base 3 cm and height 2 cm attached outside the parallelogram along the two end sections of its 9 cm base. Find the total area.

Diagram NOT accurately drawn

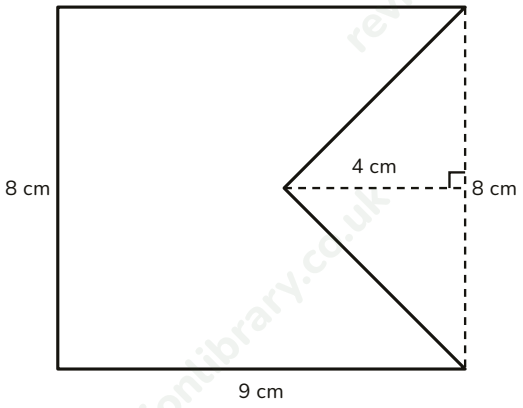


(3)

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6 A 8 cm by 9 cm rectangle has a triangle cut out of one end. The triangle has base 8 cm and perpendicular height 4 cm. Work out the area that remains.

Diagram NOT accurately drawn



(3)

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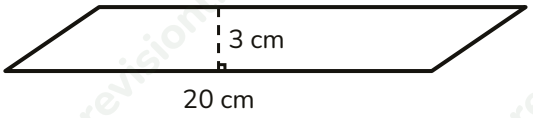
7 A floor is 10 m long and 3 m wide. Carpet costs £11 per square metre. Work out the total cost of carpeting the floor.

(3)

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8 A parallelogram has a base of 20 cm and a perpendicular height of 3 cm. Work out its area.

Diagram NOT accurately drawn

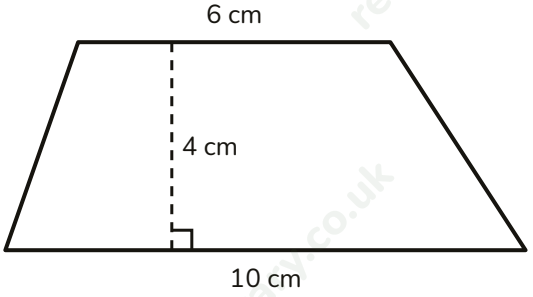


(2)

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9 Find the area of a trapezium with parallel sides 6 cm and 10 cm and height 4 cm.

Diagram NOT accurately drawn



(2)

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10 A shape is made from a rectangle 6 cm by 12 cm with a triangle on top. The base of the triangle is the 6 cm side and its perpendicular height is 7 cm. Work out the total area of the shape.

(4)

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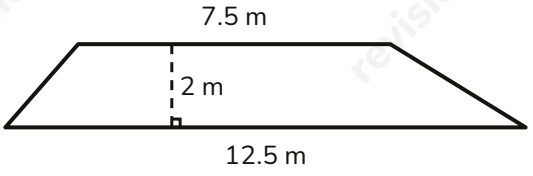
11 A wall is 8 m by 7 m. One tin of paint covers 6 m² and costs £13. Work out the cost of the paint needed. Only whole tins can be bought.

(3)

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12 A trapezium has parallel sides 7.5 m and 12.5 m with height 2 m. Calculate its area in m^2.

Diagram NOT accurately drawn

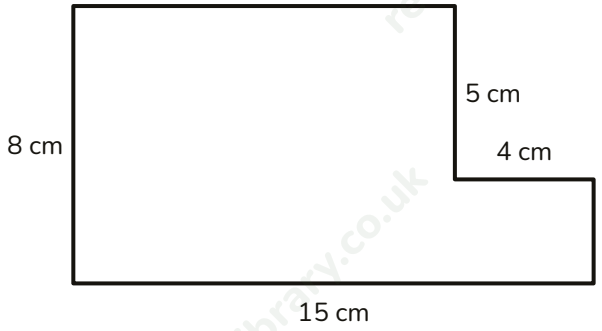


(2)

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13 An L-shape is made by taking a 15 cm by 8 cm rectangle and cutting a 4 cm by 5 cm rectangle out of one corner.
Work out the perimeter of the L-shape.

Diagram NOT accurately drawn

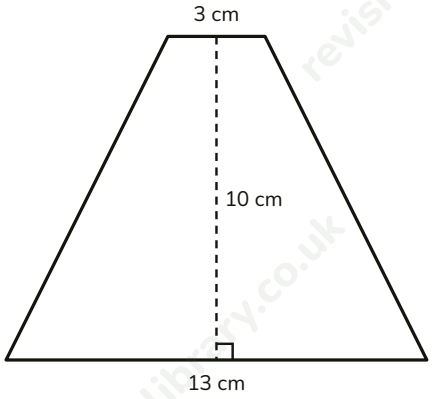


(3)

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14 A trapezium has parallel sides of 3 cm and 13 cm. The distance between the parallel sides is 10 cm. Work out the area of the trapezium.

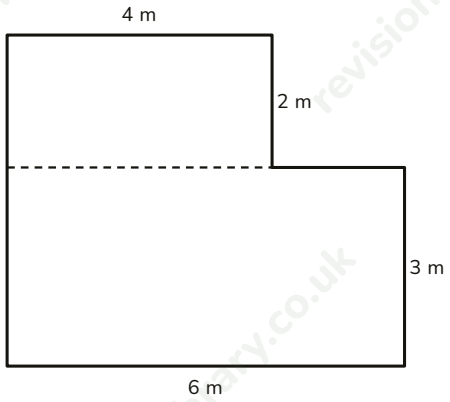
Diagram NOT accurately drawn



(3)

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15 An L-shaped figure is made from two rectangles. One rectangle is 6 m by 3 m and the other is 4 m by 2 m. Find the total area.



(2)

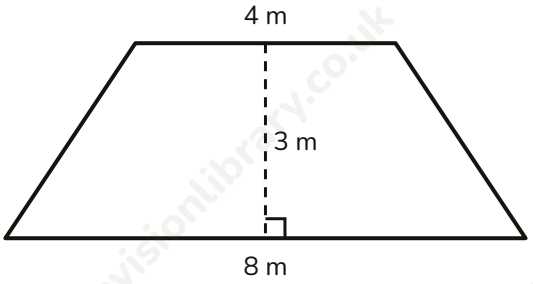
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16 A small parallelogram has area 3400 cm². Express this area in m^2.

(2)

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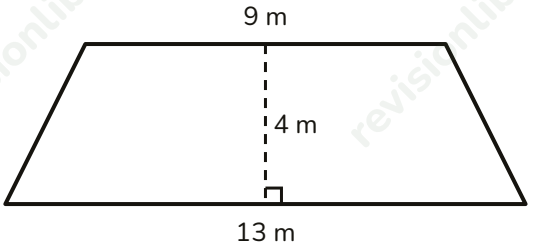
17 Priya lays a trapezium-shaped flower bed with parallel sides 4 m and 8 m and height 3 m. Soil costs £5 per m^2. Calculate the total cost of the soil.



(3)

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18 A trapezium has parallel sides 9 m and 13 m with height 4 m. Calculate its area in m^2.



(1)

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19 A parallelogram has base 11 cm and area 77 cm². State the height.

Area = 77 cm²



(1)

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Mark scheme · 4.8 Area of Parallelograms, Trapezia and Compound Shapes: Test Pack

Question 1

Area 8 x 5 = 40 cm² cao	B1

Answer: **40 cm²**

Question 2

Recognise 100 cm = 1 m so 1 m² = 10000 cm² or divide by 10000	M1
0.25 m² cao	A1

Answer: **0.25 m²**

Question 3

Use area = (a+b)/2 x h so h = area x 2 / (a+b): h = 96 x 2 / (9+15)	M1
8 m cao	A1

Answer: **8 m**

Question 4

Mention splitting trapezium into two triangles or rearranging into a rectangle idea, or pairing two identical trapezia to make a parallelogram	M1
State that a diagonal splits the trapezium into two triangles with bases a and b and the same perpendicular height h, so their areas sum to a x h/2 + b x h/2; or state that pairing two identical trapezia gives a parallelogram with base a + b and the same perpendicular height h, so area of two trapezia = (a + b) x h	M1
Conclude area of one trapezium = (a + b)/2 x h cao	A1

Answer: **(a + b)/2 x h**

Question 5

Area parallelogram 9 x 4 = 36 and area of one triangle 1/2 x 3 x 2 = 3 calculated	M1
Two triangles total 3 + 3 = 6 and add to parallelogram	M1
42 cm² cao	A1

Answer: **42 cm²**

Question 6

8 x 9	M1
72 - 1/2 x 8 x 4	M1
56 cm² cao	A1

Answer: **56 cm²**

Question 7

10 x 3 = 30	M1
30 x 11	M1
£330 cao	A1

Answer: **£330**

Question 8

20 x 3	M1
60 cm² cao	A1

Answer: **60 cm²**

Question 9

Use area = (a + b)/2 x height with a=6, b=10: (6+10)/2 x 4	M1
32 cm² cao	A1

Answer: **32 cm²**

Question 10

6 x 12 = 72	M1
1/2 x 6 x 7	M1
adds the two areas	M1
93 cm² cao	A1

Answer: **93 cm²**

Question 11

56 ÷ 6	M1
rounds up to 10 tins	M1
£130 cao	A1

Answer: **£130**

Question 12

Use (7.5 + 12.5)/2 x 2 or equivalent	M1
20 m² cao	A1

Answer: **20 m²**

Question 13

identifies that the perimeter equals that of the enclosing rectangle	M1
2 x (15 + 8)	M1
46 cm cao	A1

Answer: **46 cm**

Question 14

3 + 13 = 16	M1
1/2 x 16 x 10	M1
80 cm² cao	A1

Answer: **80 cm²**

Question 15

Areas 6 x 3 = 18 and 4 x 2 = 8 calculated and added	M1
26 m² cao	A1

Answer: **26 m²**

Question 16

uses 1 m² = 10000 cm²	M1
0.34 m² cao	A1

Answer: **0.34 m²**

Question 17

uses area = (4 + 8)/2 x 3	M1
area = 18 m²	M1
cost = £90 cao	A1

Answer: **£90**

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Question 18

44 m² cao **B1**

Answer: **44 m^2**

Question 19

7 cm cao **B1**

Answer: **7 cm**

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