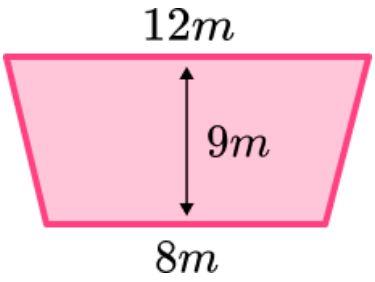
Area of a Trapezium - Worksheet

Skill

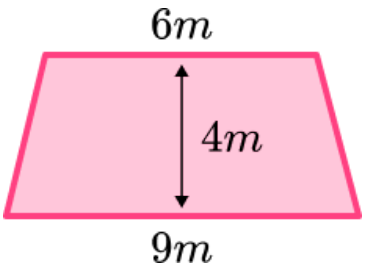
Group A - Area of Trapeziums

Calculate the areas of the trapeziums below:

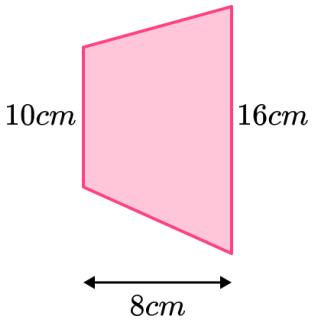
1)



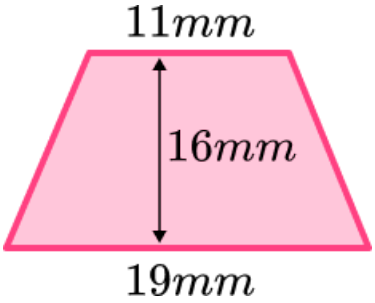
2)



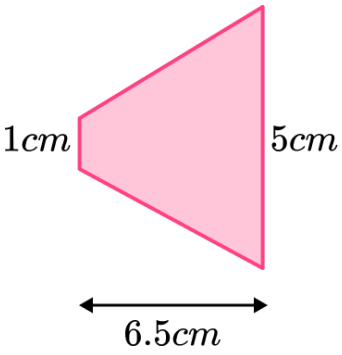
3)



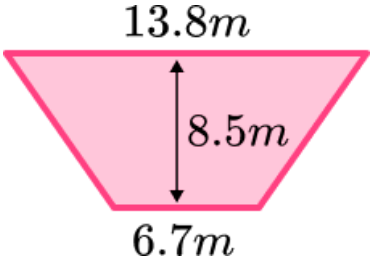
4)



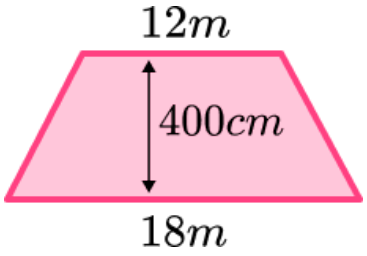
5)



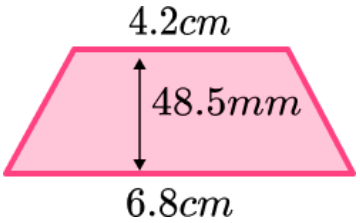
6)



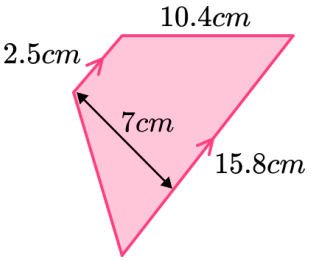
7)



8)



9)

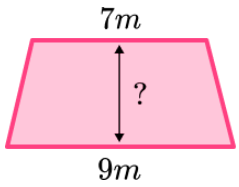


Area of a Trapezium - Worksheet

Group B - Missing Side Lengths

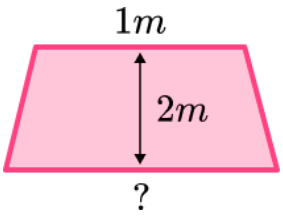
Calculate the missing measurements in the trapeziums below:

1)



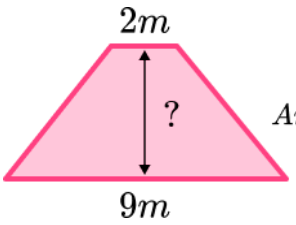
$Area = 72m^2$

2)



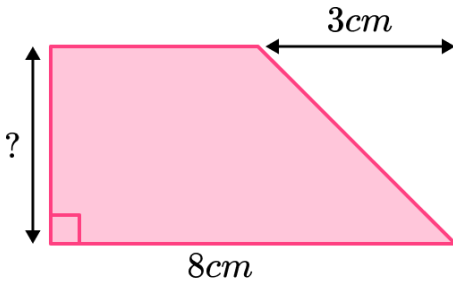
$Area = 8m^2$

3)



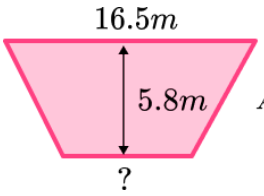
$Area = 88m^2$

4)



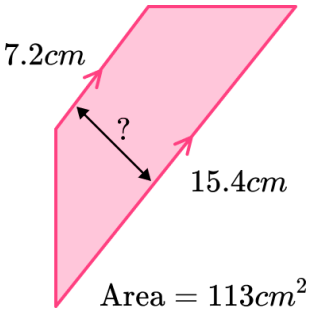
$\text{Area} = 65cm^2$

5)



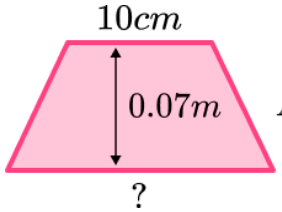
$Area = 66.7m^2$

6)



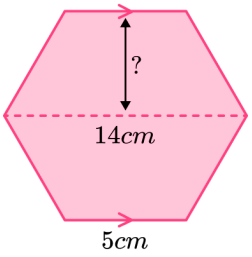
$\text{Area} = 113cm^2$

7)



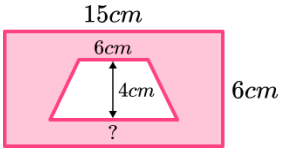
$Area = 84cm^2$

8)



$\text{Area} = 85.5cm^2$

9)



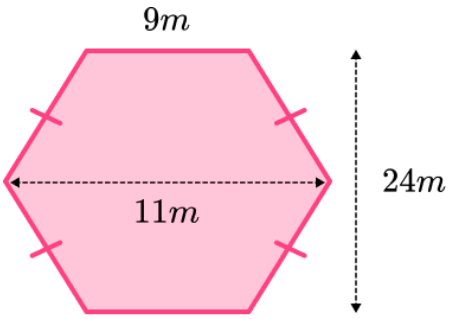
Area of shaded region = $62cm^2$

Area of a Trapezium - Worksheet

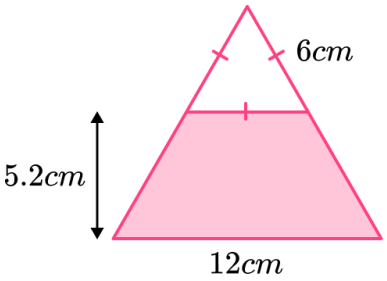
Group C - Compound Shapes

Calculate the area of the shaded regions below:

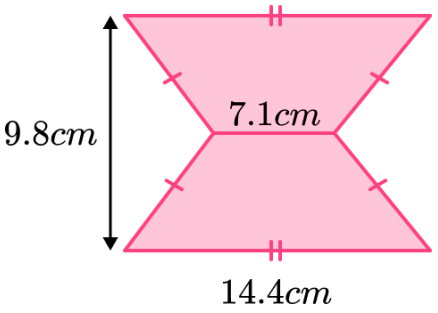
1)



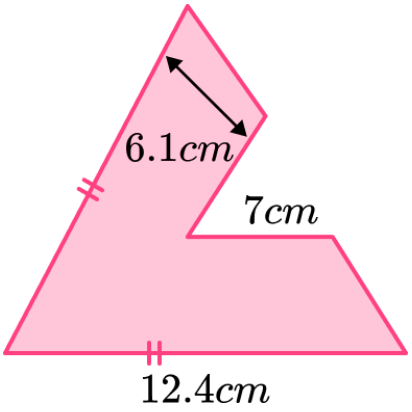
2)



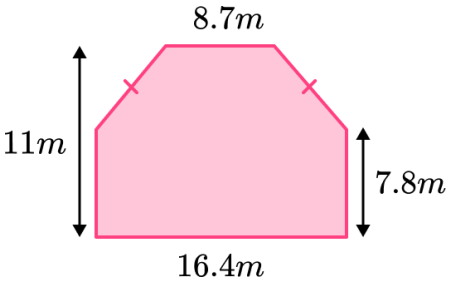
3)



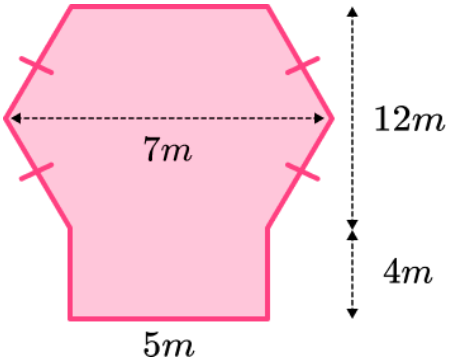
4)



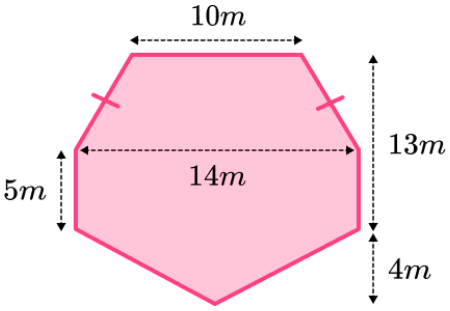
5)



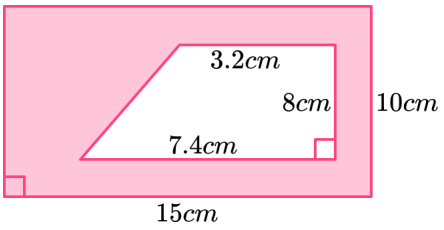
6)



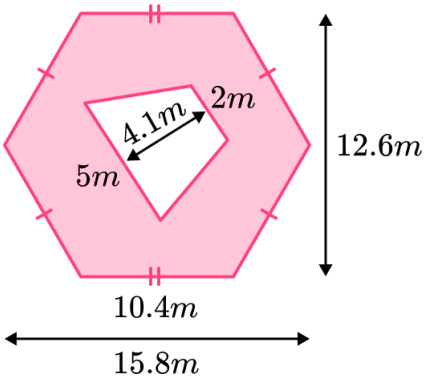
7)



8)



9)



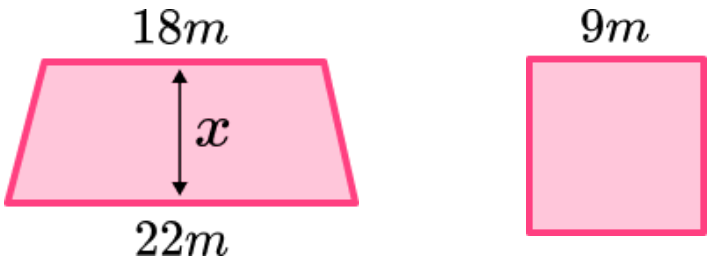
Area of a Trapezium - Worksheet

Applied

1) **(a)** Draw 2 different trapeziums with an area of $30cm^2$.

(b) Draw 2 different trapeziums with an area of $18cm^2$.

2) **(a)** The square and trapezium below have the same area.
Calculate the value of x.



3) **(a)** Farmer Dave owns a sheep field as shown below. Each sheep needs 4 square metres to graze freely. What is the maximum number of sheep that can fit on the field?

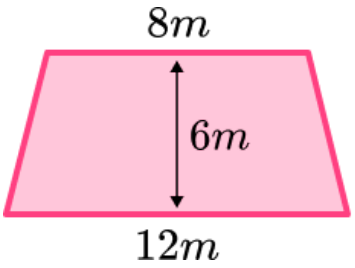


Diagram not drawn to scale

(b) Each sheep consumes £12 worth of feed each week. How much would it cost to feed all the sheep in the field for one year?

Area of a Trapezium - Worksheet

4) **(a)** A company logo is shown below consisting of 4 congruent trapeziums. The total area of the logo is $280m^2$. What is the value of x in the logo?

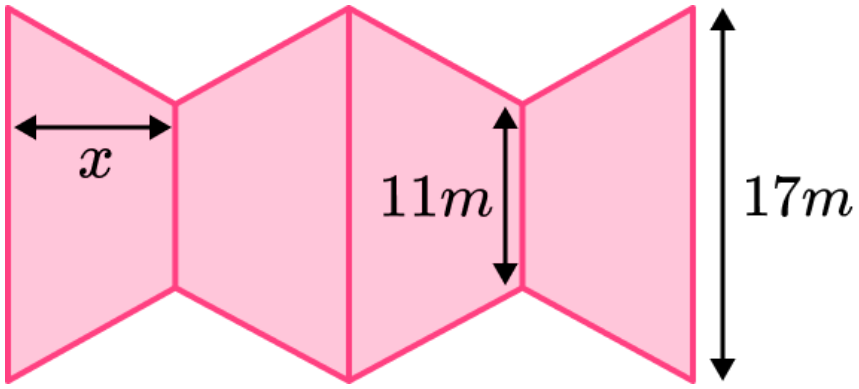


Diagram not drawn to scale

(b) The company would like to paint this logo on the side of their office building. To do this, they must enlarge their existing logo by a scale factor of 3. What is the area of the enlarged logo?

Area of a Trapezium - Exam Questions

1) The diagram on the right shows a sandpit in the shape of a trapezium.
Find the area of the trapezium.

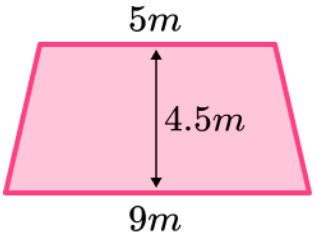


Diagram not drawn to scale

.....

(2 marks)

---

2) The area of the trapezium below is $1.4cm^2$.
Calculate the value of x.

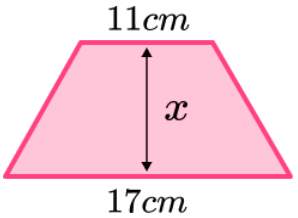


Diagram not drawn to scale

.....

(3 marks)

Area of a Trapezium - Exam Questions

3) **(a)** A tower is to be built in the centre of a busy roundabout. Each external wall and the outside of the roof will be painted black. What is the total area of the painted surfaces?

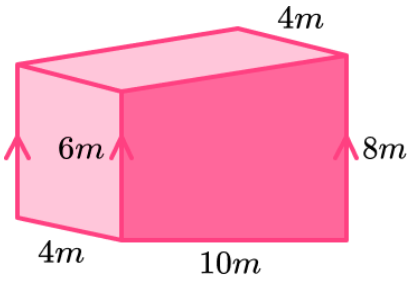


Diagram not drawn to scale

.....

(6)

(b) Each can of paint costs £5. 50 and covers a area of $55m^2$.
How much will it cost to paint the tower?

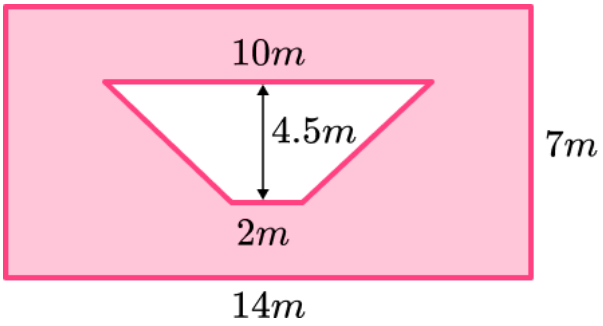
.....

(2)

(8 marks)

Area of a Trapezium - Exam Questions

4) **(a)** A landscaper is designing a rectangular garden with a flower bed in the middle. The surrounding area will be covered in grass.
What is the area of the grass?



.....

(3)

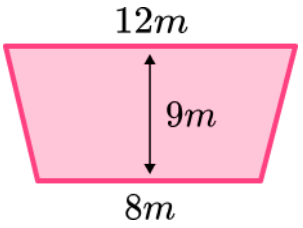
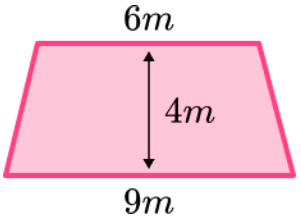
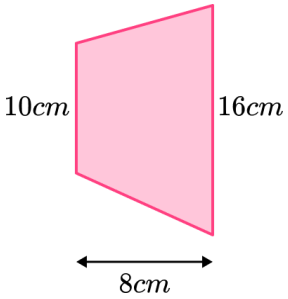
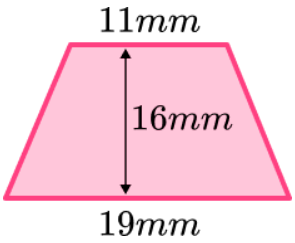
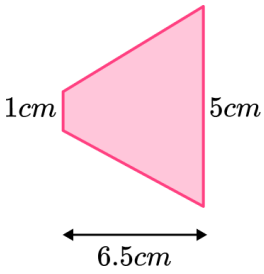
(b) What percentage of the garden is covered by the flowerbed?
Round your solution to 2 decimal places.

.....

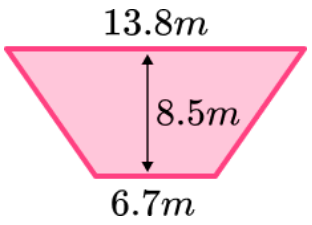
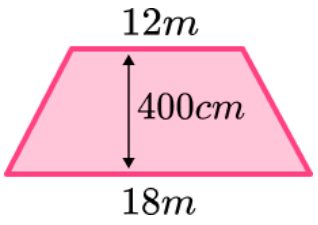
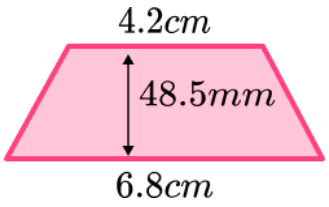
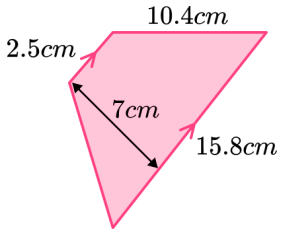
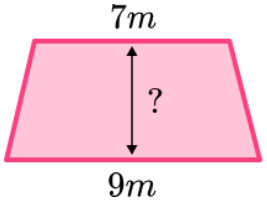
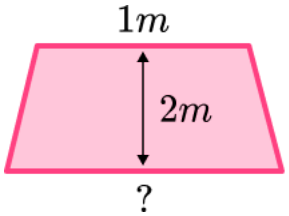
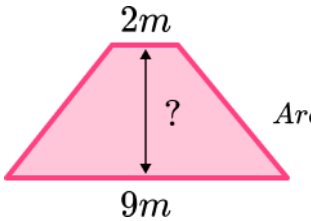
(2)

(5 marks)

Area of a Trapezium - Answers

	Question	Answer
	Skill Questions	
Group A	Calculate the areas of the trapeziums below: 1)  2)  3)  4)  5) 	1) $90m^2$ 2) $30m^2$ 3) $104cm^2$ 4) $240mm^2$ 5) $19.5cm^2$

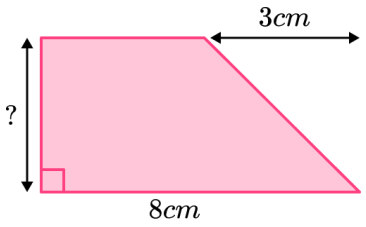
Area of a Trapezium - Answers

Group A contd	6) 	6) $87.125m^2$
	7) 	7) $60m^2$
	8) 	8) $26.675cm^2$
	9) 	9) $64.05cm^2$
Group B	Calculate the missing lengths in the trapeziums below: 1)  $Area = 72m^2$	**1)** $9m$
	2)  $Area = 8m^2$	**2)** $7m$
	3)  $Area = 88m^2$	**3)** $16m$

Area of a Trapezium - Answers

Group B contd

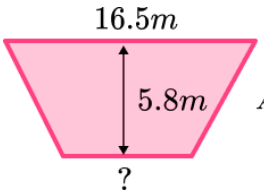
4)



Area $= 65cm^2$

4) $10cm$

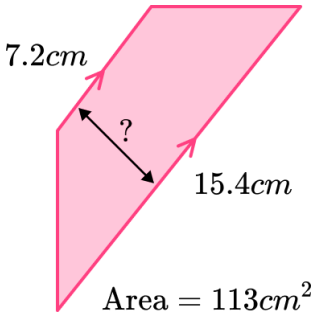
5)



$Area = 66.7m^2$

5) $6.5m$

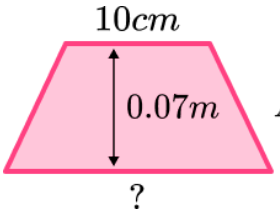
6)



Area $= 113cm^2$

6) $10cm$

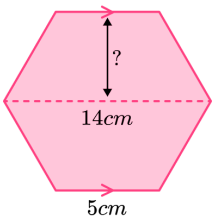
7)



$Area = 84cm^2$

7) $14cm$

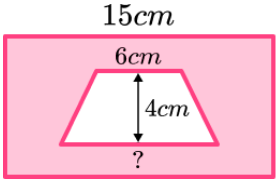
8)



Area $= 85.5cm^2$

8) $4.5cm$

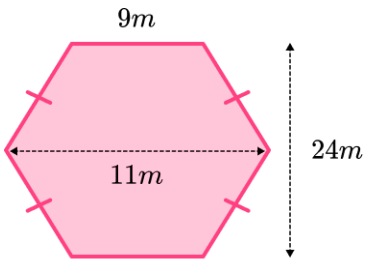
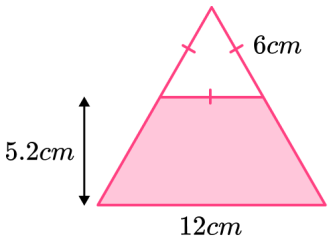
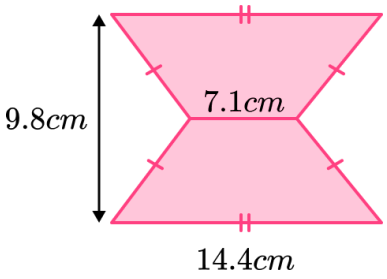
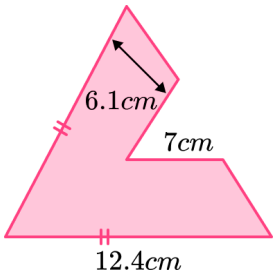
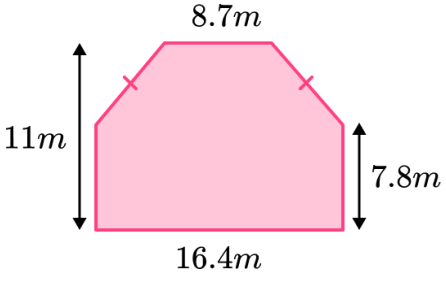
9)



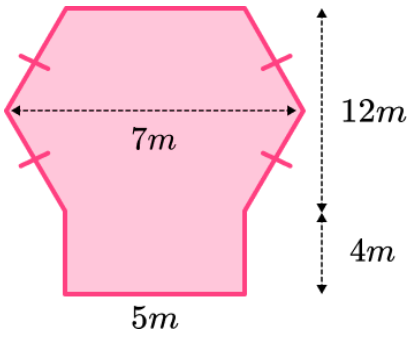
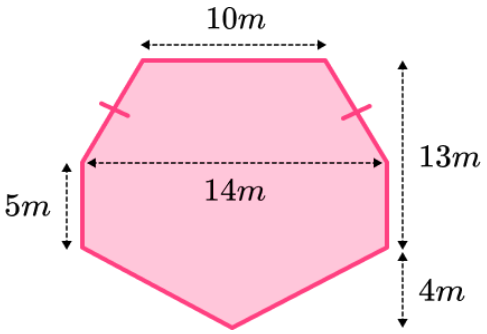
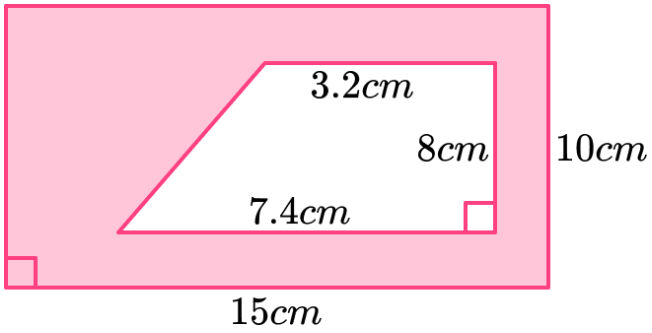
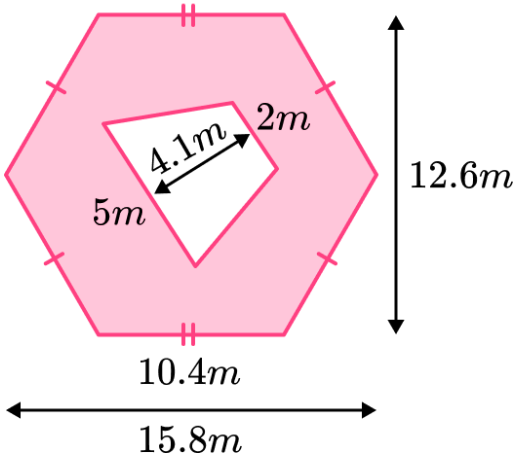
Area of shaded region = $62cm^2$

9) $8cm$

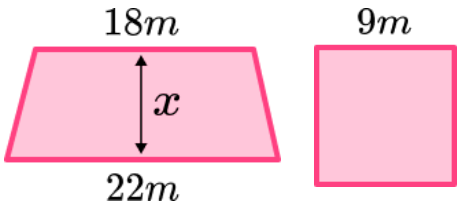
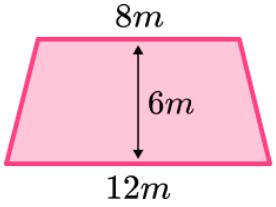
Area of a Trapezium - Answers

Group C	Calculate the areas of the compound shapes below:	
	1) 	**1)** $240m^2$
	2) 	**2)** $46.8cm^2$
	3) 	**3)** $105.35cm^2$
	4) 	**4)** $118.34cm^2$
	5) 	**5)** $168.08m^2$

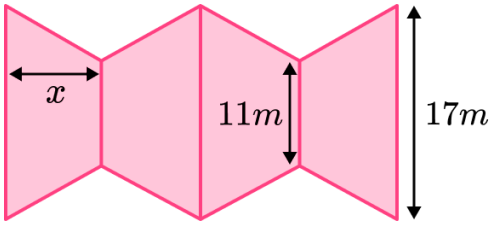
Area of a Trapezium - Answers

Group C contd	6) 	**6)** $92m^2$
	7) 	**7)** $194m^2$
	8) 	**8)** $107.6cm^2$
	9) 	**9)** $150.71m^2$

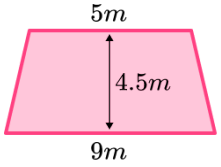
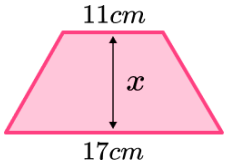
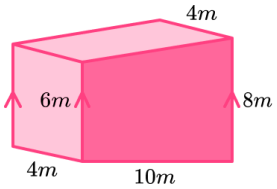
Area of a Trapezium - Answers

	Question	Answer
	Applied Questions	
1)	**a)** Draw 2 different trapeziums with an area of $30cm^2$. **b)** Draw 2 different trapeziums with an area of $18cm^2$.	**a)** Example solutions: $a = 6cm,\ b = 4cm,\ h = 6cm$ $a = 14cm,\ b = 16cm,\ h = 2cm$ **b)** Example solutions: $a = 2cm,\ b = 7cm,\ h = 4cm$ $a = 4cm,\ b = 14cm,\ h = 2cm$
2)	The square and trapezium below have the same area. Calculate the value of x. 	$x = 4.05m$
3)	**a)** Farmer Dave owns a sheep field as shown below. Each sheep needs 4 square metres to graze freely. What is the maximum number of sheep that can fit on the field?  Diagram not drawn to scale	**a)** 15 sheep
	b) Each sheep consumes £12 worth of feed each week. How much would it cost to feed all the sheep in the field for one year?	**b)** £9360

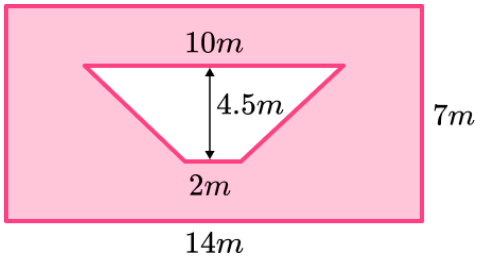
Area of a Trapezium - Answers

4)	**a)** A company logo is shown below consisting of 4 congruent trapeziums. The total area of the logo is $280m^2$. What is the value of x in the logo?  *Diagram not drawn to scale*	**a)** $x = 5m$
	b) The company would like to paint this logo on the side of their office building. To do this, they must enlarge their existing logo by a scale factor of 3. What is the area of the enlarged logo?	**b)** $2520m^2$

Area of a Trapezium - Mark Scheme

	Question	Answer	
	Exam Questions		
1)	The diagram on the right shows a sandpit in the shape of a trapezium. Find the area of the trapezium.  Diagram not drawn to scale	$\frac{9+5}{2} \times 4.5$ **oe** $31.5m^2$	**(1)** **(1)**
2)	The area of the trapezium on the right is $1.4cm^2$. Calculate the value of x.  Diagram not drawn to scale	$\frac{11+17}{2} \times x$ **oe** $14x = 1.4$ **oe** $x = 0.1cm$	**(1)** **(1)** **(1)**
3) (a)	A tower is to be built in the centre of a busy roundabout. Each external wall and the outside of the roof will be painted black. What is the total area of the painted surfaces?  Diagram not drawn to scale	**(a)** $\frac{8+6}{2} \times 10 = 70m^2$ $8 - 6 = 2m$ $\sqrt{2^2 + 10^2} = 2\sqrt{26}$ **or** 10.198... $4 \times 2\sqrt{26} = 8\sqrt{26}$ **or** 40.792... $6 \times 4 = 24m^2$ **and** $8 \times 4 = 32m^2$ Total Surface Area $140 + 8\sqrt{26} + 24 + 32 = 236.79m^2$	**(1)** **(1)** **(1)** **(1)** **(1)** **(1)**
(b)	Each can of paint costs £5.50 and covers an area of $55m^2$. How much will it cost to paint the tower?	**(b)** $240 \div 55 = 4.36$ **or** 5 tins **seen** $5 \times 5.50 = £27.50$	**(1)** **(1)**

Area of a Trapezium -Mark Scheme

4) (a)	A landscaper is designing a rectangular garden with a flower bed in the middle. The surrounding area will be covered in grass. What is the area of the grass?  	**(a)** $14 \times 7 = 98m^2$ $\frac{2+10}{2} \times 4.5 = 27m^2$ $98 - 27 = 71m^2$	**(1)** **(1)** **(1)**
(b)	What percentage of the garden is covered by the flowerbed? Round your solution to 2 decimal places.	**(b)** $\frac{27}{98}$ **oe** 27.55%	**(1)** **(1)**