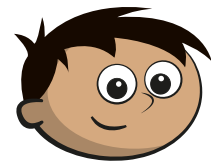
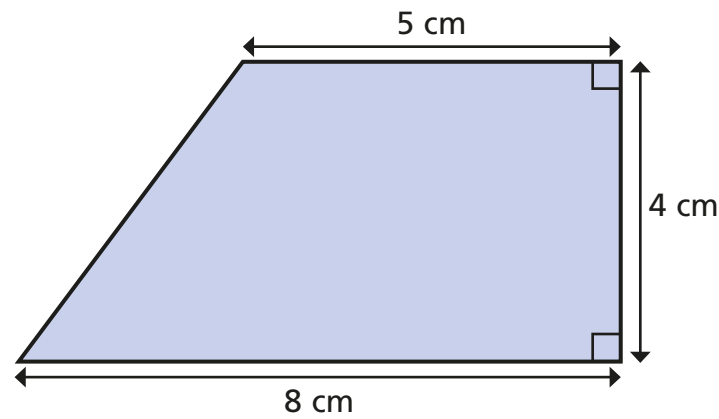


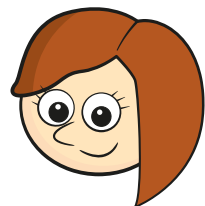
# Calculate the area of a trapezium

1 Amir and Rosie are working out the area of this trapezium.



Amir

I will divide the shape into a rectangle and triangle, and work out the area of each one.



Rosie

I will just use the formula for the area of a trapezium.

a) Use Amir's method to find the area of the trapezium.

26 cm<sup>2</sup>

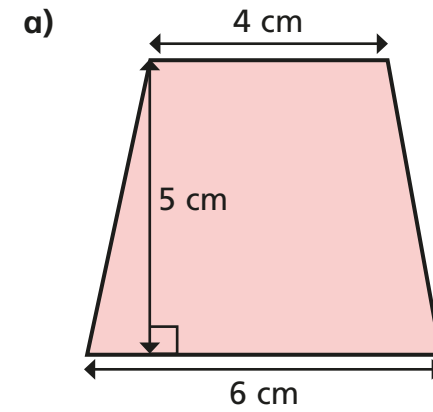
b) Use Rosie's method to find the area of the trapezium.

26 cm<sup>2</sup>

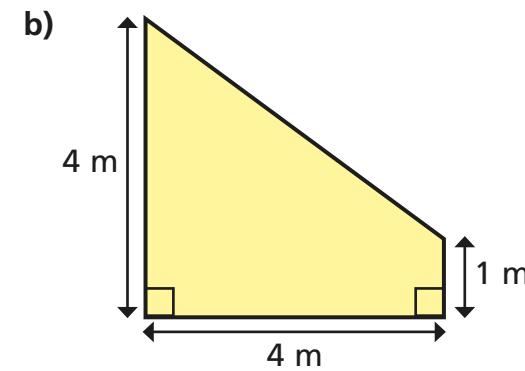
Whose method do you prefer?

Various

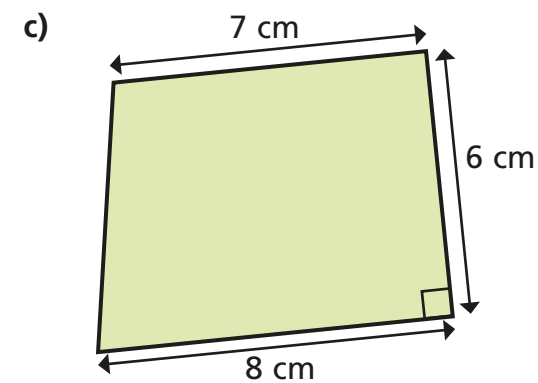
2 Find the area of each trapezium.



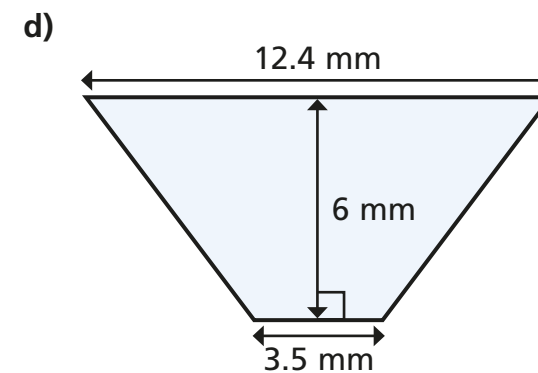
25 cm<sup>2</sup>



10 m<sup>2</sup>

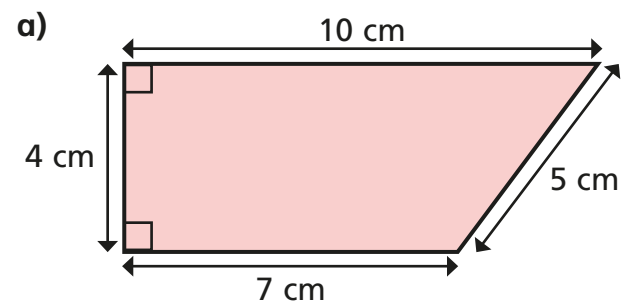


45 cm<sup>2</sup>

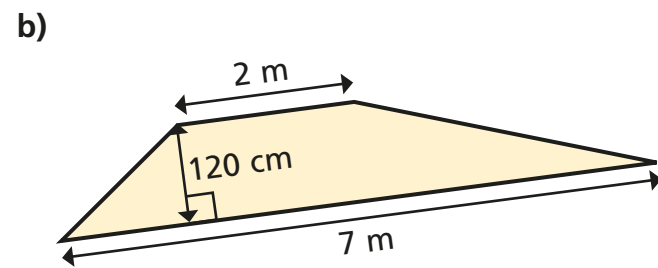


47.7 mm<sup>2</sup>

3 Work out the area of each trapezium.



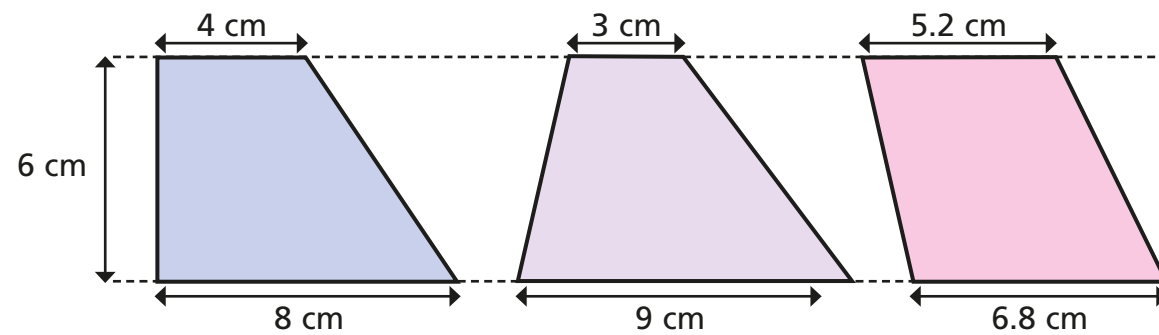
$34 \text{ cm}^2$



$5.4 \text{ m}^2$

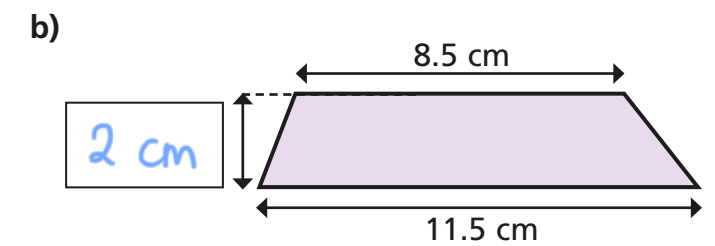
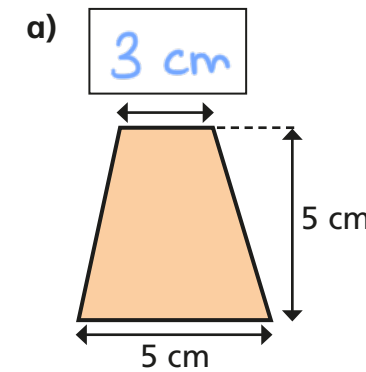
c) Discuss with a partner what mistakes could be made when working out the areas in parts a) and b).

4 Explain why these trapeziums all have the same area.

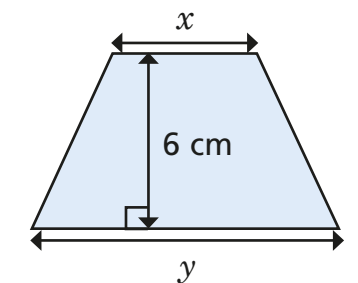


Each trapezium has the same height and the sum of their parallel sides is equal.

5 The area of each trapezium is  $20 \text{ cm}^2$ . Find and label the missing lengths.



6 The area of the trapezium is  $24 \text{ cm}^2$ .

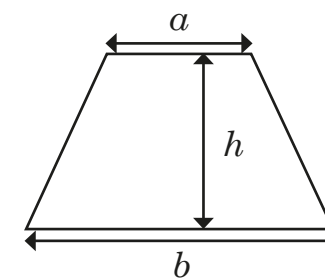


Write three possible pairs of values of  $x$  and  $y$ .

$x = 1 \text{ cm}$        $y = 7 \text{ cm}$   
 $x = 2 \text{ cm}$        $y = 6 \text{ cm}$   
 $x = 3 \text{ cm}$        $y = 5 \text{ cm}$

7 Prove the statement.

The formula for a trapezium is equal to the area of a parallelogram when the lengths of  $a$  and  $b$  are equal.



When  $a = b$ , then  
 $\frac{1}{2}(a+b)h = \frac{1}{2}(b+b)h$   
 $= \frac{1}{2}(2b)h$   
 $= bh$