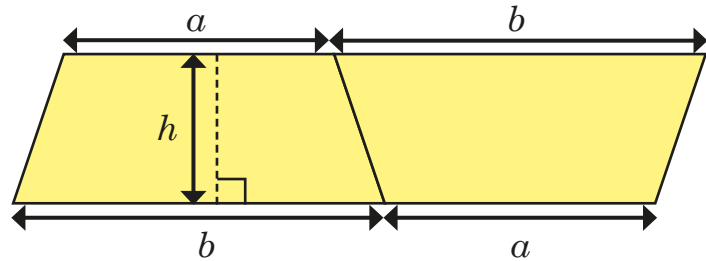


Area of a trapezium

- 1 The diagram shows two identical trapezia connected along one edge.

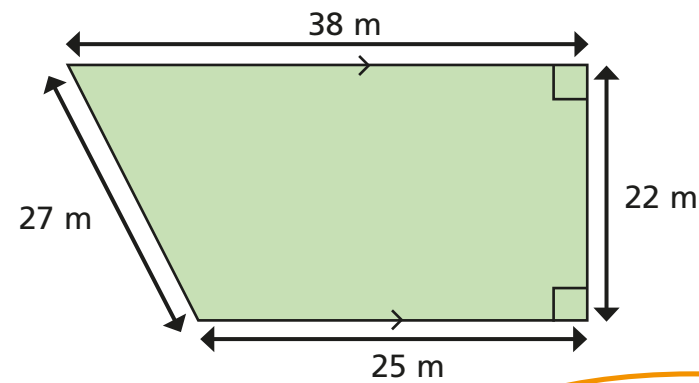


Use the diagram to explain why the area of a trapezium is given by the formula:

$$A = \frac{1}{2}(a + b)h$$

They've connected to make a parallelogram with area $(a+b)h$ so each trapezium has area $\frac{1}{2}(a+b)h$

- 2 Amir and Whitney are finding the area of this trapezium.



I used the formula.

I split the trapezium into a rectangle and a triangle.

- a) Use each person's method to find the area of the trapezium.

Whitney's method

$$22 \times 25 = 550$$

$$\frac{13 \times 22}{2} = 143$$

$$\text{Area} = 693 \text{ m}^2$$

Amir's method

$$\frac{1}{2}(38 + 25) \times 22$$

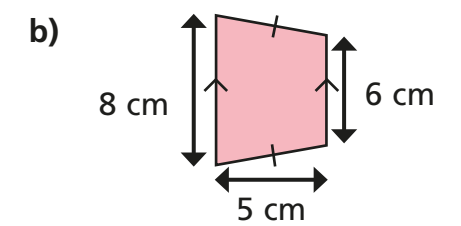
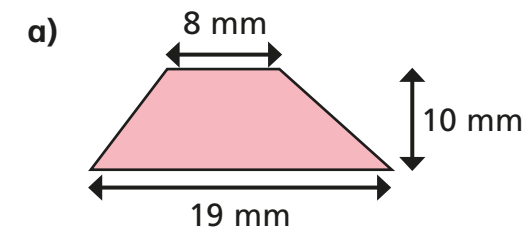
$$= \frac{1}{2} \times 63 \times 22$$

$$= 693$$

$$\text{Area} = 693 \text{ m}^2$$

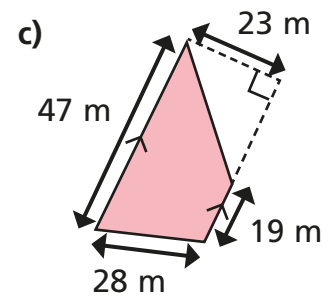
- b) Which method do you prefer?

- 3 Find the area of the trapezia.

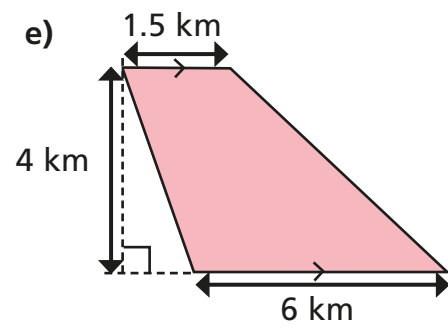


area = 135 mm²

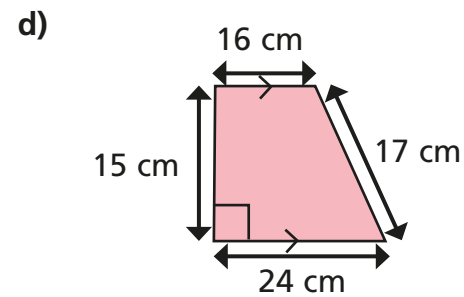
area = 35 cm²



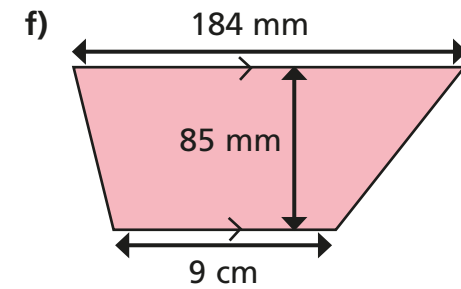
area = m²



area = km²



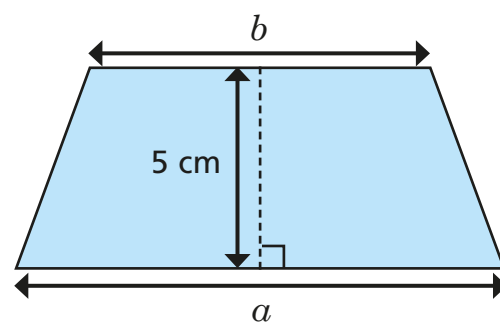
area = cm²



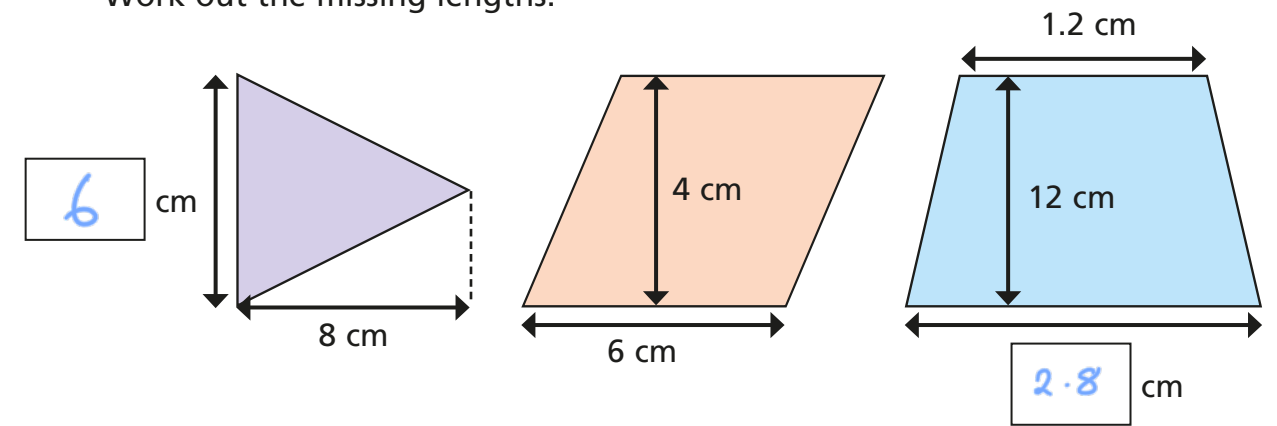
area = mm²

- 4 The area of the trapezium is 20 cm²
Find 3 possible pairs of values of a and b .

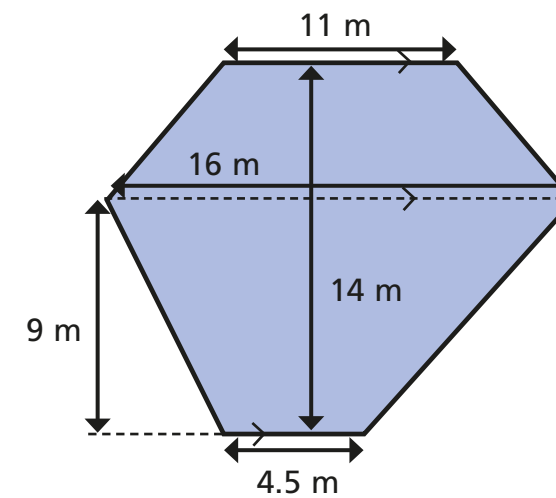
$a =$ $b =$
 $a =$ $b =$
 $a =$ $b =$



- 5 These shapes have the same area.
Work out the missing lengths.



- 6 Work out the area of the hexagon.



area = m²

- 7 In a trapezium, one parallel side is three times the length of the other.
The perpendicular height is one quarter of the length of the longest parallel side.
The perpendicular height is 1.2 m.
Work out the area of the trapezium.

area = m²