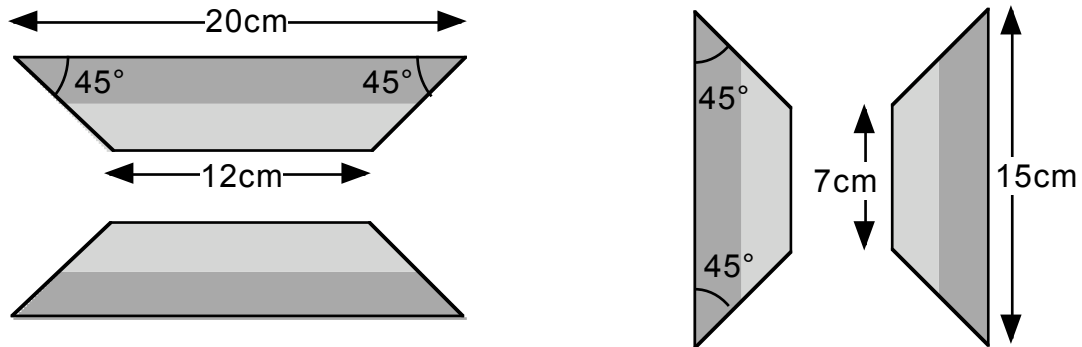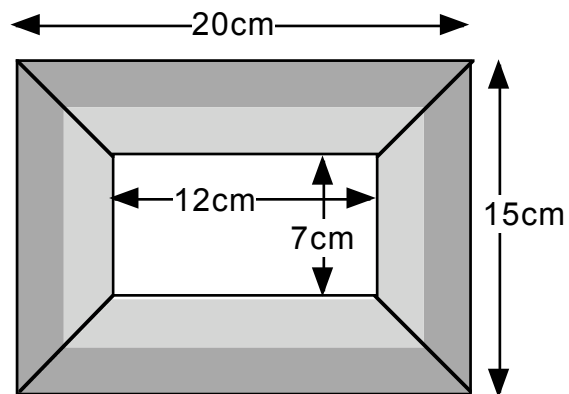## Data sheet   Frames

Each of these four pieces of card is a trapezium with two 45° angles.

The four pieces fit together to make a rectangular frame.

The area enclosed by the frame is

$$12 \times 7 = 84 cm^2$$

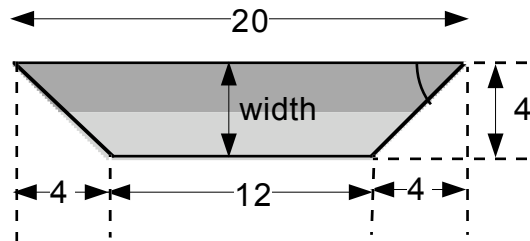The outside perimeter of the frame is

$$20 + 15 + 20 + 15 = 70cm$$

The length of card needed for the whole frame = the outside perimeter

$$= 70cm$$

The width of the card used in a frame

= half the difference between the long and short sides.

In this example,　　long side = 20cm, short side = 12cm
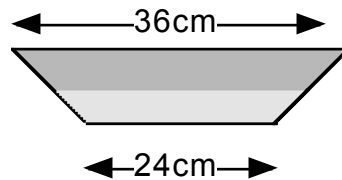
$$20 - 12 = 8$$

so, width of card = 8 ÷ 2 = 4cm

Questions   **Frames**

1

Mary uses four pieces of card this size to make a square frame.

←————36cm————→

←—24cm—→

(a) What is the area that the frame will enclose?

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ cm²

(b) What is the outside perimeter of the frame?

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ cm

(c) What is the width of the card?
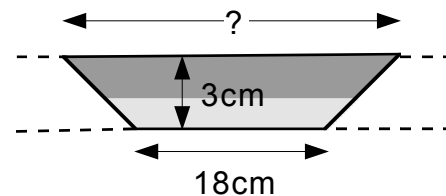
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ cm

2

Pablo cuts a length of card to make a trapezium that will be one side of a frame.
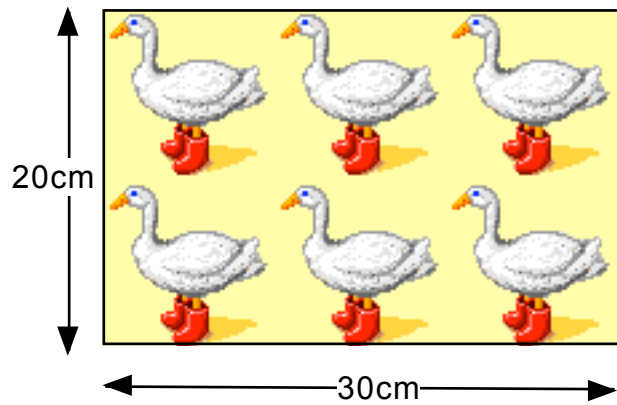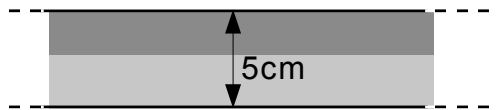The card is 3cm wide.
The shorter side of the trapezium is 18cm.

←———— ? ————→

3cm

How many centimetres is the longer side?

18cm

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ cm

3

Calculate the length of 5cm wide card that is needed to make a rectangular frame that fits exactly around this picture.
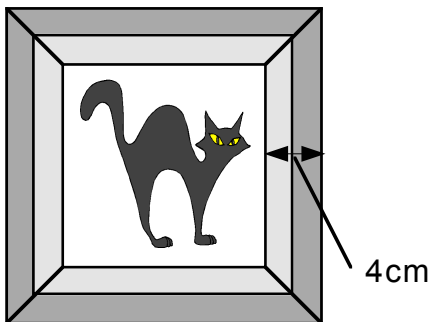
20cm

30cm

5cm

_____ cm

4

A 1 metre length of card is used to make a frame for a square picture.

The card is 4cm wide.

What is the area of the picture it frames?

4cm

_____ cm²