

2.5

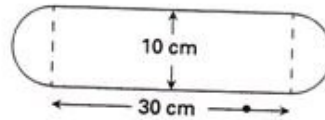
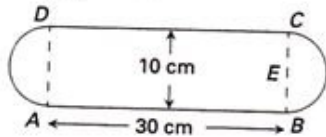
Complicated perimeters

Name: _____ Class: _____

Remember: Circumference = $2\pi r$ units

1 Find the perimeter of this figure.

Step 1 Label key points.



Step 2 Perimeter = straight edge (AB) + curved half circle (BC)
+ straight edge (CD) + curved half circle (DA)

Step 3 Straight edge (AB) = straight edge (CD) = a _____ cm

Curved half circle (BC) has radius $BE = \frac{1}{2}$ of $BC = 5$ cm

Circumference of circle with radius 5 cm = $(2 \times \pi \times 5)$ cm = b _____ cm
(2 decimal places)

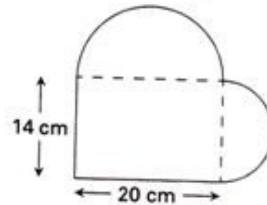
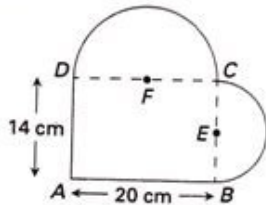
\therefore Curved half circle (BC) = $\frac{1}{2}$ of 31.42 cm = c _____ cm

Also curved half circle (DA) = 15.71 cm (since the two half circles are identical)

Step 4 Perimeter = (d _____ + 15.71 + e _____ + f _____) cm = 91.42 cm

2 Find the perimeter of the figure shown on the right.

Step 1 Label key points.



Step 2 Perimeter = straight edge (AB) + curved half circle (BC)
+ curved half circle (CD) + straight edge (DA)

Step 3 Straight edge (AB) = a _____ cm

Straight edge (DA) = b _____ cm

Curved half circle (BC) has radius $BE = \frac{1}{2}$ of c _____ cm = 7 cm

Circumference of circle with radius 7 cm
= (d _____ \times e _____ \times f _____) cm = 43.982 cm

\therefore Curved half circle (BC) = $\frac{1}{2}$ of g _____ cm = h _____ cm

Curved half circle (CD) has radius $CF = \frac{1}{2}$ of i _____ cm = j _____ cm

Circumference of circle with radius 10 cm
= (k _____ \times l _____ \times m _____) cm = n _____ cm

\therefore Curved half circle (CD) = $\frac{1}{2}$ of o _____ cm = p _____ cm

Step 4 Perimeter = (q _____ + 21.991 + r _____ + s _____) cm = t _____ cm

Did you hear about the cross-eyed teacher?



Calculate the perimeter of each triangle below, then find the answer in the coded message and exchange the triangle's letter for the answer.

Triangles and their side lengths:

- S**: 23 m, 30 m, 40 m
- T**: 29 cm, 37 cm, 18 cm
- C**: 18 cm, 20 cm, 15 cm
- I**: 69 mm, 55 mm, 63 mm
- O**: 5 km, 6 km, 2 km
- E**: 4 km, 13 km, 11 km
- N**: 25 cm, 42 cm, 27 cm
- R**: 57 mm, 85 mm, 32 mm
- D**: 59 mm, 43 mm, 38 mm
- H**: 29 m, 48 m, 28 m
- U**: 36 m, 47 m, 35 m
- P**: 55 mm, 71 mm, 66 mm
- L**: 43 m, 31 m, 38 m

Coded message grid:

53 cm	13 km	94 cm	84 cm	mm	174	13 km	12 m	105 m	28 km	mm	174	192	118 m	mm	177	94 m	13 km	84 cm
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Calculate the perimeters of these squares and rectangles. Join the dot next to each shape with its perimeter. The letter each line passes through is the code for the shape number.

Shapes and their dimensions:

- Rectangle: 9 cm, 15 cm
- Rectangle: 13 cm
- Rectangle: 5 cm, 18 cm
- Rectangle: 16 cm
- Rectangle: 8 cm, 17 cm
- Rectangle: 12 cm, 17 cm
- Rectangle: 16 m, 10 m
- Diamond: 17 m

Code letters:

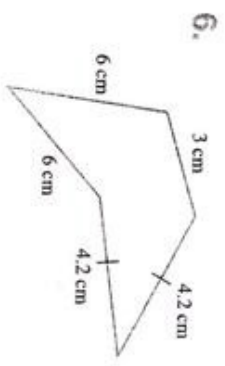
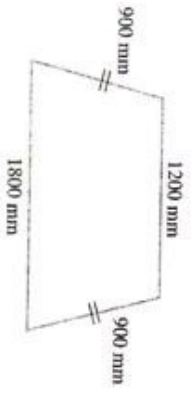
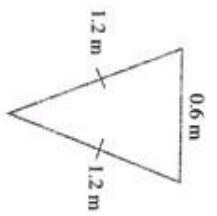
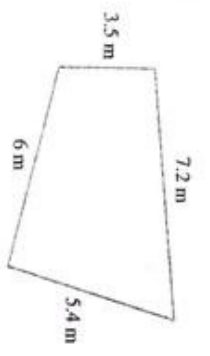
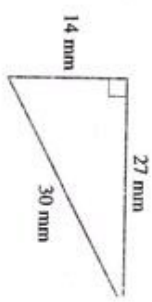
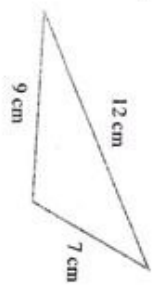
- 46 cm: **A**
- 52 m: **W**
- 68 cm: **I**
- 48 cm: **L**
- 58 cm: **E**
- 52 cm: **H**
- 50 cm: **T**
- 64 cm: **C**

Code grid:

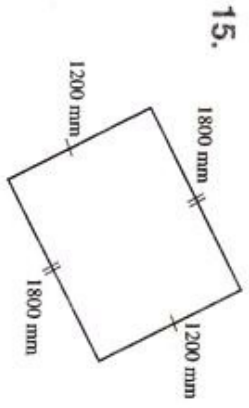
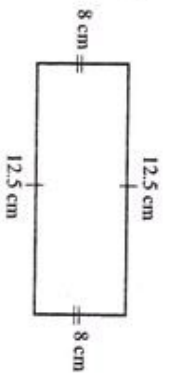
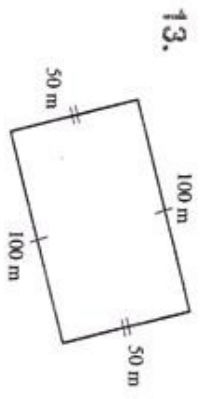
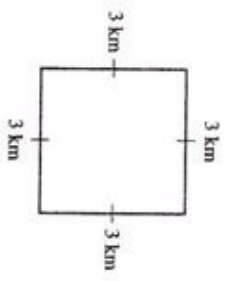
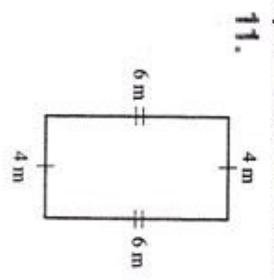
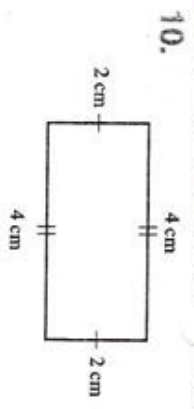
1	2	8	8	2	7	4	3	5	4	6	2	5
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PERIMETERS

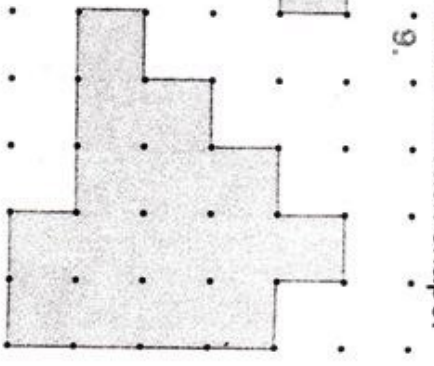
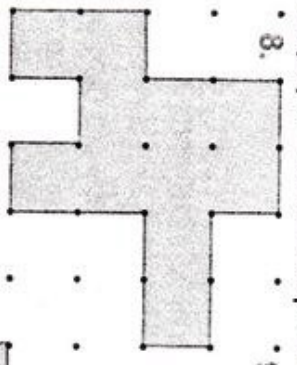
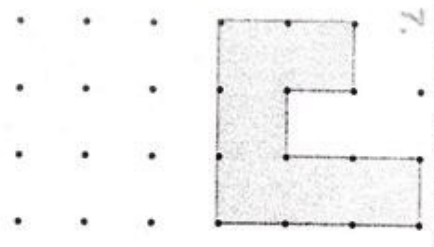
Find the perimeter of these shapes.



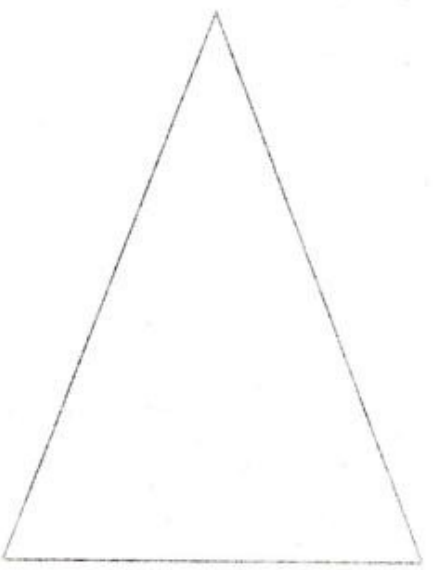
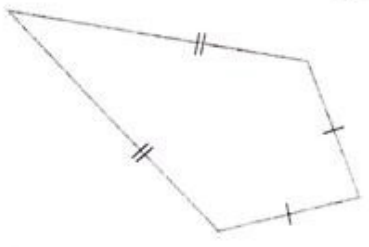
Use the measurement to find the perimeter of these rectangles.



Use the 1 cm square dot paper to find the perimeter of each shape.



Measure each side of these shapes to the nearest centimetre. Find the perimeter.

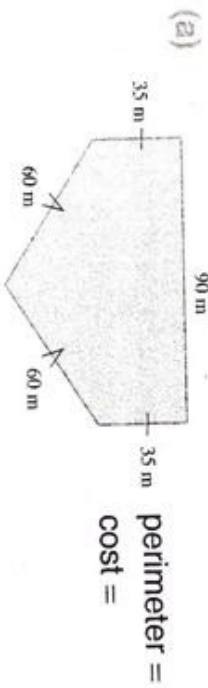


Perimeter problems

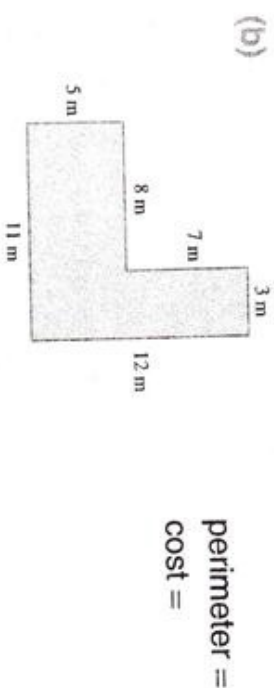
18. Three farmers wanted to fence their paddock.

Find the perimeter of the paddocks.

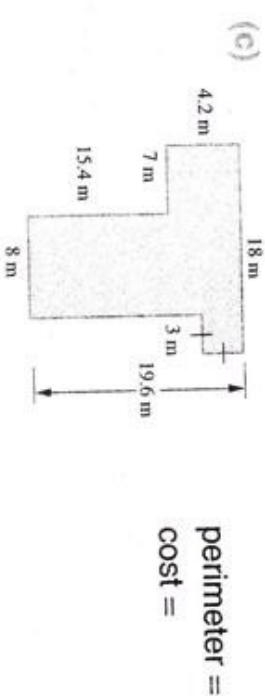
Find how much it would cost for the fence if it was \$10 per metre.



perimeter =
cost =



perimeter =
cost =



perimeter =
cost =

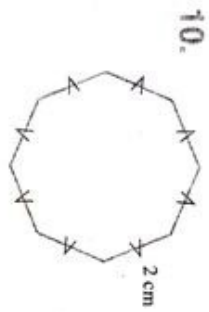
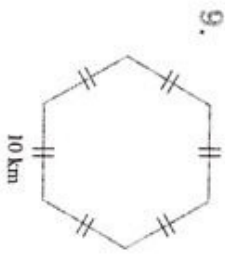
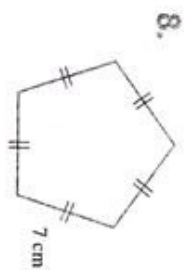
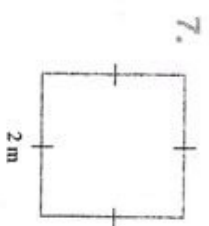
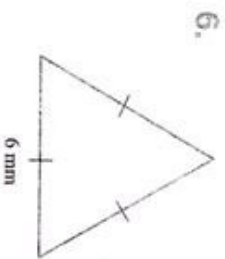
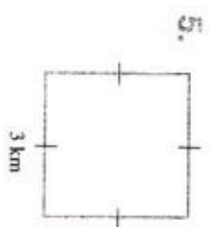
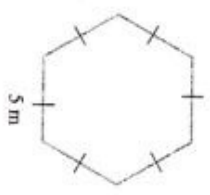
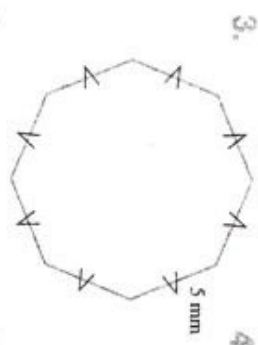
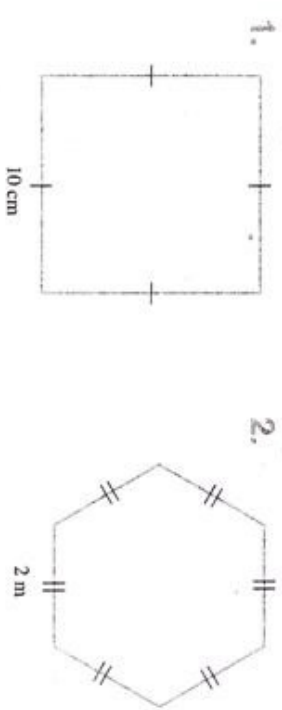
19. A jogger runs around a block of lengths 130 metres, 70 metres, 120 metres and 70 metres.

(a) How far is it once around the block?
(b) What distance is it after 10 laps around the block?
(c) How far is it in kilometres after 10 laps around the block?



Name each shape AND

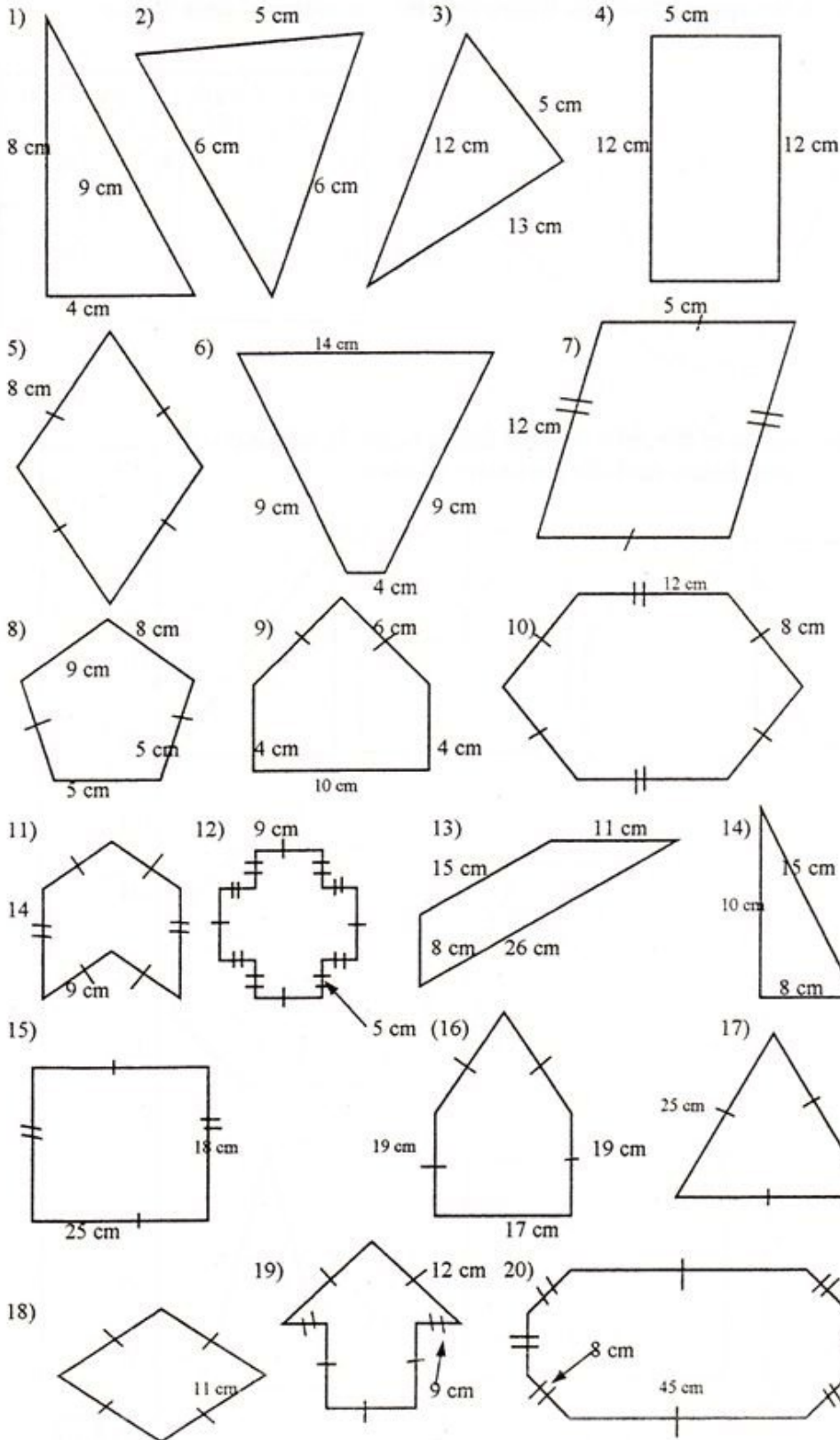
Find the perimeter of these regular shapes.



Measurement 1 - Unit 7

Lesson
2

Find the perimeters of all figures below. All measurements are in centimetres



Answers	
1)	
2)	
3)	
4)	
5)	
6)	
7)	
8)	
9)	
10)	
11)	
12)	
13)	
14)	
15)	
16)	
17)	
18)	
19)	
20)	

Mark
/20

EXERCISE M9

Problems on perimeter of rectangles and squares

Show all necessary working and draw a diagram for each problem.

1. A square has a perimeter of 84 cm
Find the length of a side.

diagram

working

2. A large rectangular paddock is 940 metres long and 660 metres wide.
Find the length of wire fencing needed for

- (a) a one-strand wire fence

diagram

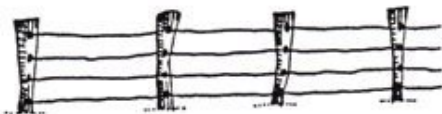
working



- (b) a four-strand wire fence

diagram

working



3. A rectangular playing card has a perimeter of 30 cm
If it is 90 mm long, find out how wide it is.

diagram

working

4. You have a small rectangular yard 42 m long and 18 m wide. You want to enclose it with a fence. First you have to put fence posts at 6 m intervals, starting at a corner. Calculate how many fence posts you will need.

diagram

working

5. 38 cars are parked side by side with 60 cm between each car and the next. The width of each car is 1.5 metres. Find the total length of the row of 38 cars.



6. Measure the length and breadth of the top face of a match box. Use these measurements to work out the perimeter of this top face.



7. Trees are planted at 5 m intervals around a rectangular plot 55 m by 30 m, starting at a corner. How many trees have been used?
8. A large rectangular paddock is 1500 m long and 850 m wide. Find what it would cost a farmer to have the paddock fenced by a contractor who charges \$980 per km to supply and erect the fence.
9. Dominoes are placed side by side with a space of 3 cm between them. Each domino is 2.5 cm wide. Find the total length of a row of 26 dominoes arranged in this way.

Optional challenge question

10. A carpenter has to nail down flooring boards in a room 6 metres long and 4.8 metres wide. The boards are 6 m long and 10 cm wide. 2 nails are used at each end of every board and also at intervals of 25 cm along each board. The boards are put down parallel to the length of the room and there are no joins.

i. Draw a neat diagram to show how the boards will be laid.

ii. find the number of boards that must be used for the floor.

iii. find the number of nails needed for:

a. each board

b. the whole floor.

iv. Find the cost of the nails at \$2.15 per kg if there are 250 nails to the kilogram.

Perimeters 1

Work out the perimeter of the shapes below. Measure to the nearest mm. (P = Perimeter)

1. P = _____
 P = _____

2. P = _____

3. P = _____

4. P = _____

Perimeters 2

Work out the perimeter of each shape to the nearest mm. Sides marked with \diagup are the same length as each other, as are those marked with \diagdown . (P = Perimeter)

1. P = _____

3. P = _____

2. P = _____

Draw Perimeters

- Draw the following:
1. A square with a perimeter of 12 cm
 2. A rectangle with a perimeter of 12 cm
 3. A triangle with a perimeter of 12 cm

Blank space for drawing shapes.

Perimeters 3

Work out the perimeters of the shapes below. (Make sure all units are the same before you add the lengths of the sides.)

1. P = _____

2. P = _____

3. P = _____



Working Out Perimeters

info

The **perimeter** is the sum of the lengths of all the sides of a shape.

Work out the perimeters of the shapes below. Be careful to give answers in the correct units. Sides marked with \diagup are the same length as each other, as are those marked with \parallel . (P = Perimeter)

1. 37 mm

P _____

2. 69.34 m

P _____

3. 77 cm

P _____

4. 3.720 km

P _____

5. 20 m

This shape has been cut in half along the dotted line. What is the perimeter of the full shape?

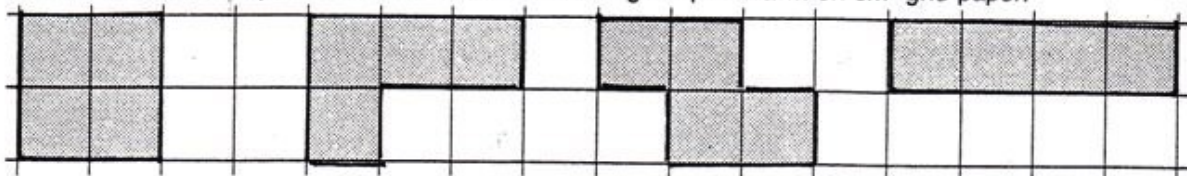
P _____

6. 22 cm

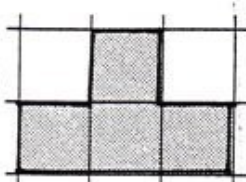
P _____

72 Perimeters and areas of rectangles

- 1 Find the area and the perimeter of each of the following shapes drawn on cm^2 grid paper.

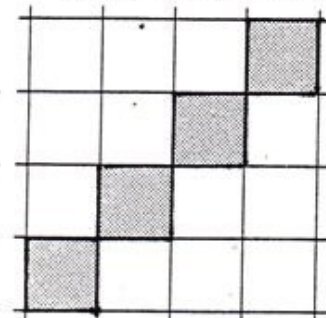
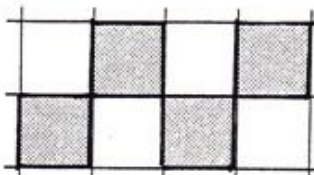


- a Area = cm^2 b Area = cm^2 c Area = cm^2 d Area = cm^2
 Perimeter = cm Perimeter = cm Perimeter = cm Perimeter = cm



- e Area = cm^2
 Perimeter = cm

- f Area = cm^2
 Perimeter = cm



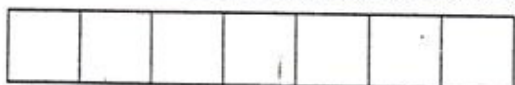
- g Area = cm^2
 Perimeter = cm

- 2 In Question 1, what did you find out about:

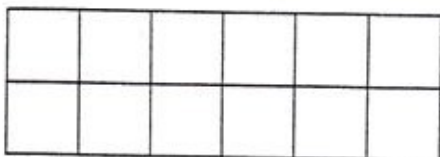
- a the area of each shape?
 b the perimeter of each shape?

- 3 What can you say about the perimeters of shapes with the same area?

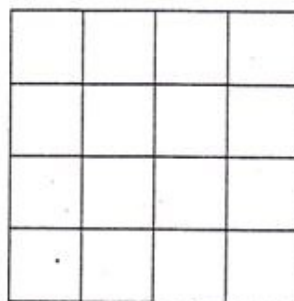
- 4 Find the area and perimeter of each of these rectangles:



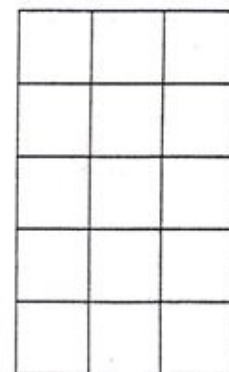
- a Area = cm^2 Perimeter = cm



- b Area = cm^2
 Perimeter = cm



- c Area = cm^2 d Area = cm^2
 Perimeter = cm Perimeter = cm



- 5 In Question 4, what did you find about:

- a the areas of the rectangles?
 b the perimeters of the rectangles?

- 6 What can you say about rectangles with the same perimeter?

- 7 Which shape in Question 4 had:

- a the largest area? b the smallest area?

- 8 If you wanted to build a house, using the least number of bricks to cover the largest floor area, what rectangular shape would you use?

- 9 Complete:

For rectangles with fixed the
 has the largest area.