Area and its Boundary

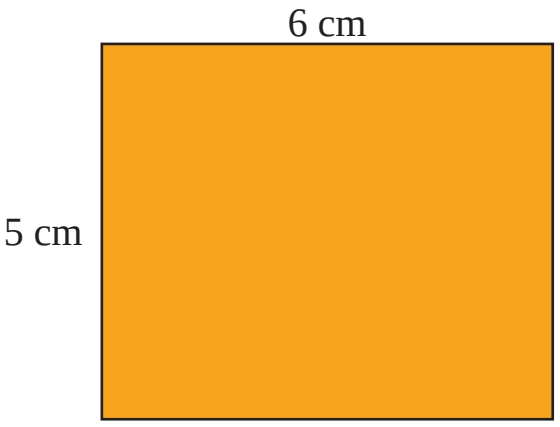
Chapter 9

Whose Slice is Bigger?

Salim and Rukaiya bought *aam paapad* [dried mango slice] from a shop.

Their pieces looked like these.

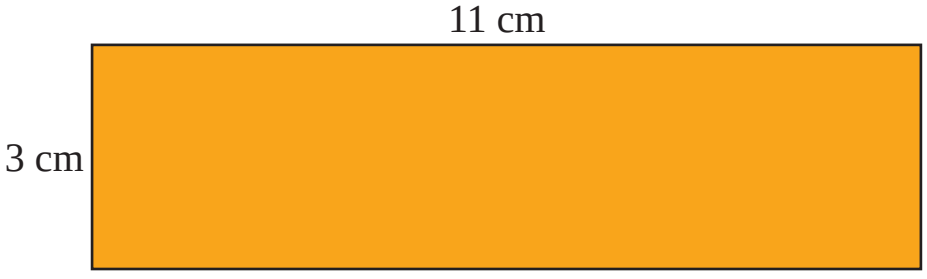
Both could not make out whose piece was bigger.



Piece A

❖ Suggest some ways to find out whose piece is bigger. Discuss.

A friend of Salim and Rukaija showed one way, using small squares.



Piece B

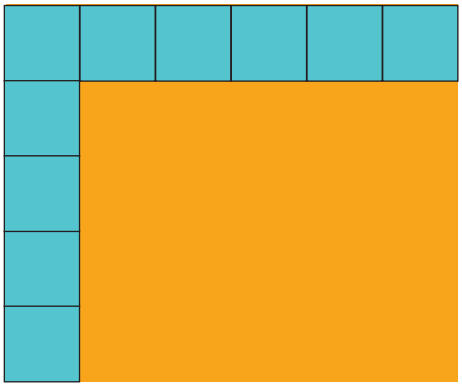
The length of piece A is 6 cm.

So 6 squares of side 1 cm can be arranged along its length.

The width of piece A is 5 cm.

So 5 square can be arranged along with its width.

- ❖ Altogether how many squares can be arranged on it? _____
- ❖ So the area of piece A = _____ square cm.



Piece A

- ❖ In the same way find the area of piece B.
- ❖ Who had the bigger piece? How much bigger?

Cover with Stamps

This stamp has an area of 4 square cm. Guess how many stamps will cover this big rectangle.

Check your guess

a. Measure the yellow rectangle. It is _____ cm long.

b. How many stamps can be placed along its length? _____

c. How wide is the rectangle? _____ cm

d. How many stamps can be placed along its width? _____

e. How many stamps are needed to cover the rectangle? _____

f. How close was your earlier guess? Discuss.

g. What is the area of the rectangle? _____ square cm.

h. What is the perimeter of the rectangle? _____ cm.

Practice Time

a. Adnan plans to tile his kitchen floor with green square tiles. Each side of the tile is 10 cm. His kitchen is 220 cm in length and 180 cm wide. How many tiles will he need?

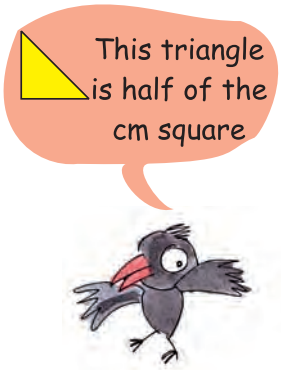
b. The fencing of a square garden is 20 m in length. How long is one side of the garden?

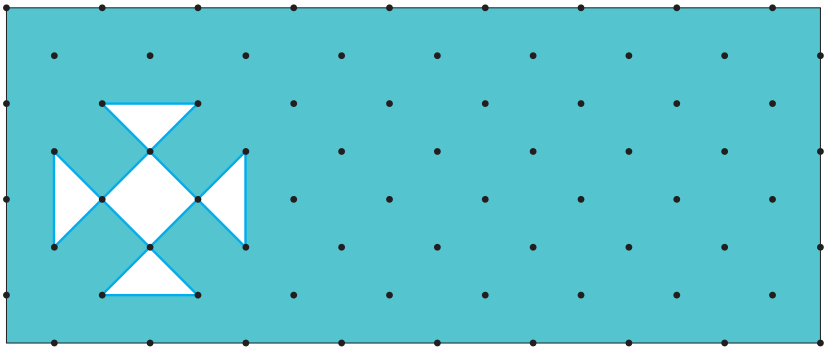
c. A thin wire 20 cm long is formed into a rectangle. If the width of this rectangle is 4 cm, what is its length?

d. A square carom board has a perimeter of 320 cm. How much is its area?

e. How many tiles like the triangle given here will fit in the white design?

Area of design = _____ square cm.





f. Ambreen, Ulfat, Mudasir and Kabir made greeting cards. Complete the table for their cards:

Whose card	Length	Width	Perimeter	Area
Ambreen	10 cm	8 cm		
Mudasir	11 cm		44 cm	
Ulfat		8 cm		80 square cm
Kabir			40 cm	100 square cm

My Belt is Longest!

Take a thick paper sheet of length 14 cm and width 9 cm. You can also use an old postcard.

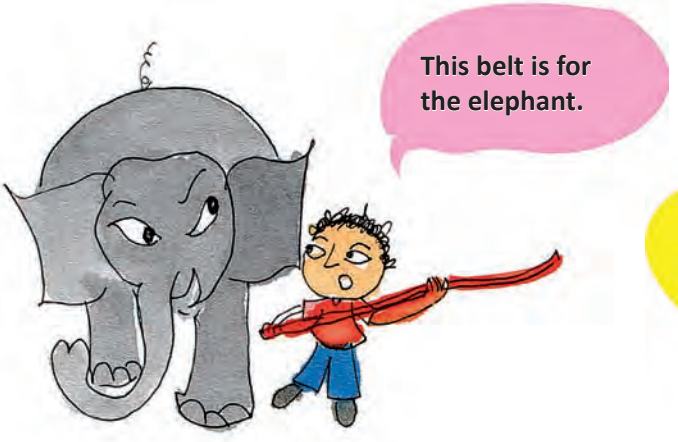
- ❖ What is its area? What is its perimeter?
- ❖ Now cut strips of equal sizes out of it.

Using tape join the strips, end to end, to make a belt.

- How long is your belt? _____
- What is its perimeter ____
- Whose belt is the longest in the class? ____

Discuss

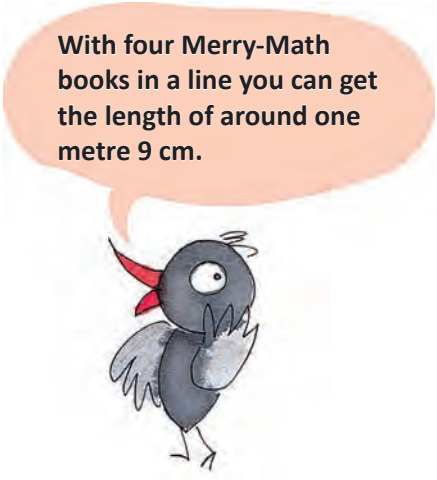
- Why did some of your friends get longer belts than others?
- Is the area of your belt the same as the area of the postcard? Why or why not?
- What will you do to get a longer belt next time?



Puzzle: Pass through a Postcard

Can you think of how to cut a postcard so that you can pass through it? (See photo.) If you have tried hard enough and still not got it… look for the answer somewhere ahead.

People People Everywhere



A) You can play this game in a ground.

Make two squares of one square metre each.

Divide your class in two teams. Ready to play!

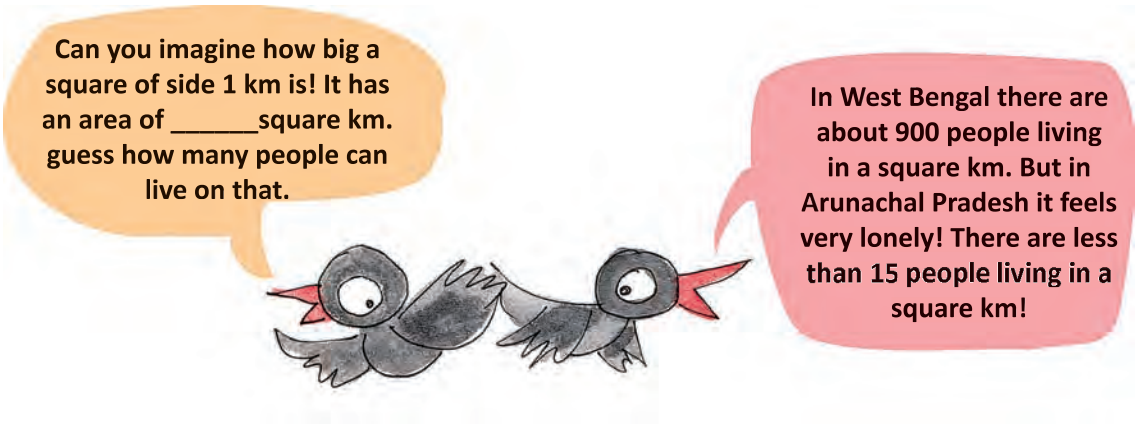
Try these in your teams –

- ❖ How many of you can sit in one square metre? _____
- ❖ How many of you can stand in it? _____
- ❖ Which team could make more children stand in their square?

  How many? _____
- ❖ Which team could make more children sit in their square? How many?

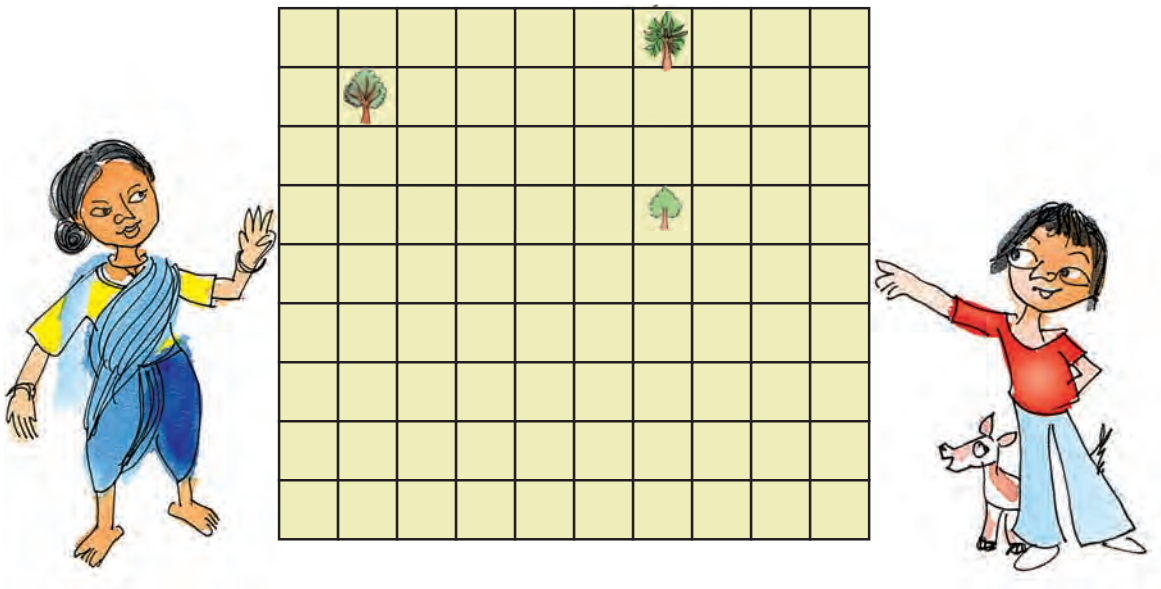
Measure the length of the floor of your classroom in metres. Also measure the width.

- ❖ What is the area of the floor of your classroom in square metres? _____
- ❖ How many children are there in your classroom? _____
- ❖ So how many children can sit in one square metre? _____
- ❖ If you want to move around easily then how many children do you think should be there in one square metre? _____



Share the Land

Mubeena is a farmer who wants to divide her land equally among her three children – Asmat, Iram and Altaf. She wants to divide the land so that each piece of land has one tree. Her land looks like this.

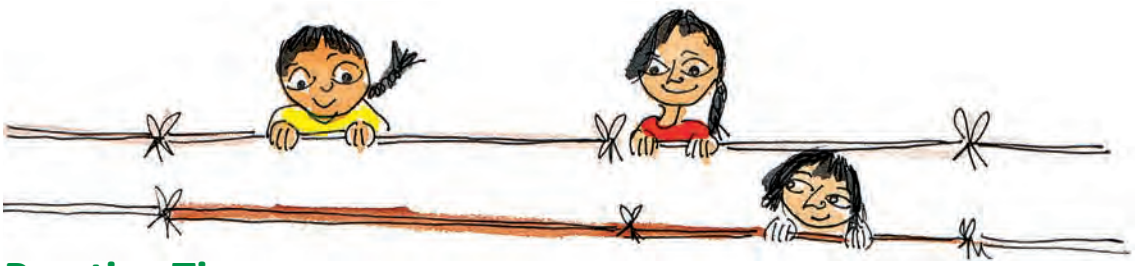


❖ Can you divide the land equally? Show how you will divide it. Remember each person has to get a tree. Colour each person's piece of land differently.

- If each square on this page is equal to 1 square metre of land, how much land will each of her children get? _____ square m

  Asmat, Iram and Altaf need wire to make a fence.

- Who will need the longest wire for fencing? _____
- How much wire in all will the tree need? _____



Practice Time

A. Look at the table. If you were to write the area of each of these which colomn would you choose? Mark a (✓)

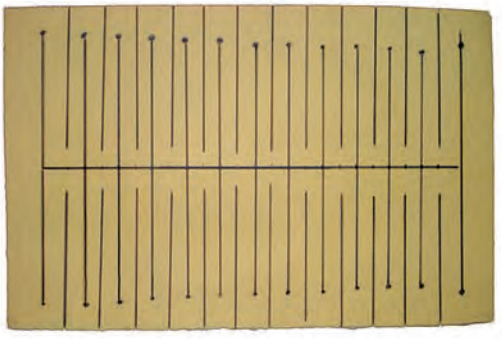
	Square cm	Square metre	Square km
Handkerchief	✔		
Sari			
Page of your book			
School Land			
Total land of a city			
Door of your classroom			
Chair seat			
Blackboard			
Indian flag			
Land over which a river flows			

B. Draw a square of 9 cm. write A on it.
Draw another square with double the side.
Write B on it.

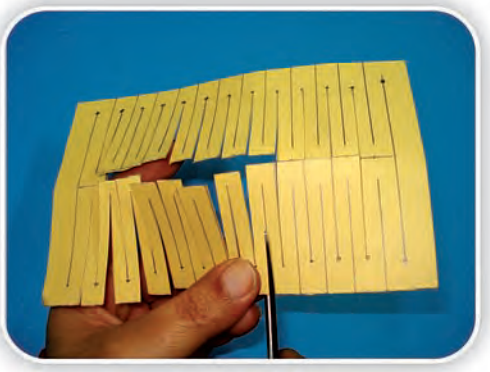
Answer these –

1. The perimeter of square A is _____ cm.
2. The side of square B is _____ cm.
3. The area of square B is _____ square cm.
4. The area of square B is _____ times the area of square A.
5. The perimeter of square B is _____ cm.
6. The perimeter of square B is _____ times the perimeter of square A.

Answer – Pass Through a Postcard (page 142)

1. 

Make lines on a postcard like this.

2. 

Cut the postcard only on the lines.

3. 

So, can you pass through it!

- ❖ You know the area of the loop, don't you? It is _____

Thread Play

Take a 15 cm long thread. Make different shapes by joining its ends on this sheet.

A) Which shape has the biggest area? How much? _____

What is the perimeter of this shape? _____

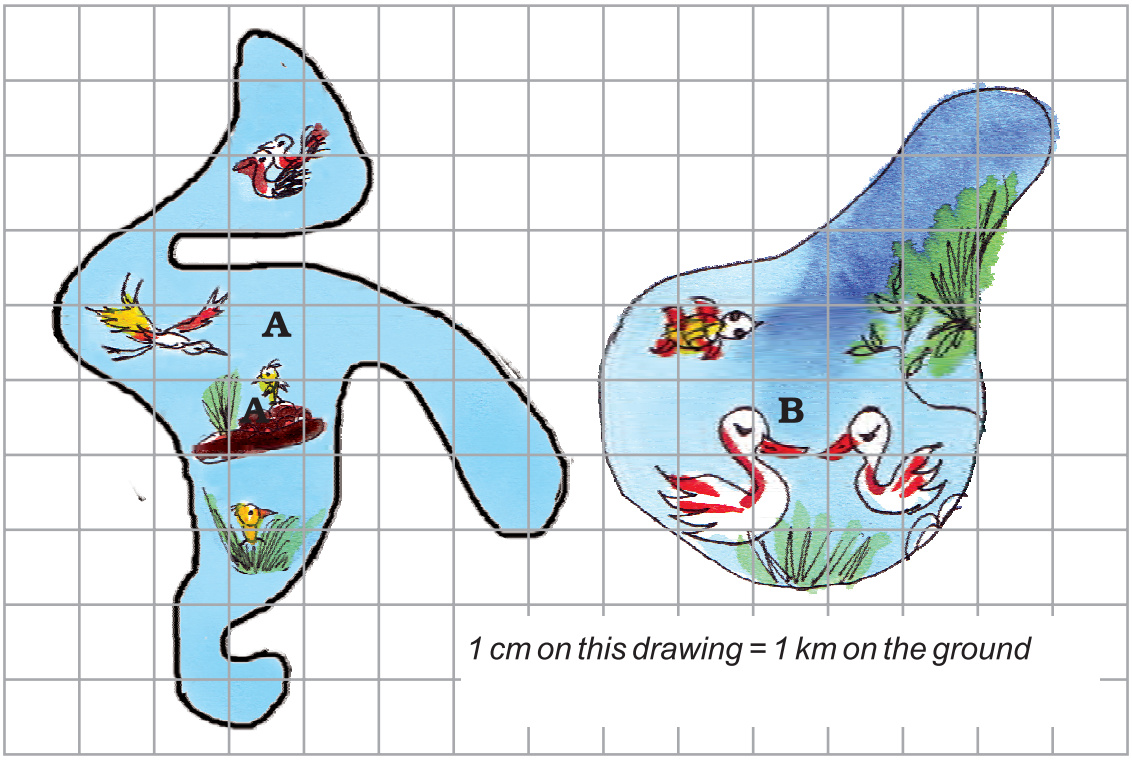
B) Which shape has the smallest area? How much? _____

What is the perimeter of this shape? _____

Also make a triangle, a square, a rectangle and a circle. Find which shape has the biggest area and which has the smallest.

Save the Birds

There are two beautiful lakes near a village. People come for boating and picnics in both the lakes. The village Panchayat is worried that with the noise of the boats the birds will stop coming. The Panchayat wants motor boats in only one lake. The other lake will be saved for the birds to make their nests.



a. How many cm is the length of the boundary of Lake A. in the drawing? _____ (use thread to find out)

b. What is the length of the boundary of Lake B in the drawing?

c. How many kilometers long is the actual boundary of Lake A?

d. How many kilometers long is the actual boundary of Lake B?

e. A longer boundary around the lake will help more birds to lay their eggs. So which lake should be kept for birds? Which lake should be used for boats?

f. Find the area of lake B on the drawing in square cm. what is its actual area in square km?

King's Story

The king was very happy with the carpenters. Balbir and Kuldeep. They had made a very big and beautiful bed for him. So as gifts the king wanted to give some land to Balbir, and some gold to Kuldeep.

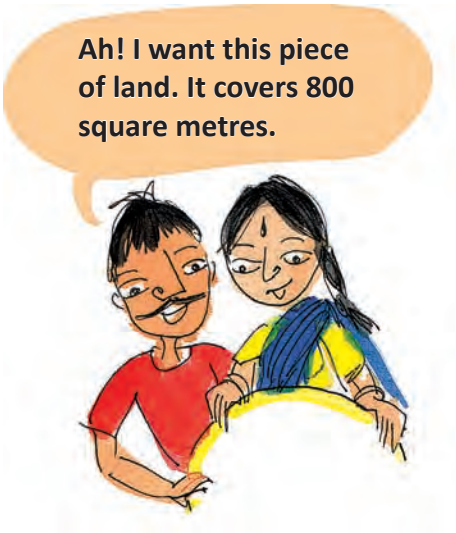
Balbir was happy. He took 100 meters of wire and tried to make different rectangles.

He made a 10 m × 40 m rectangle.

Its area was 400 square meters.

So he next made a 30 m × 20 m rectangle.

- ❖ What is its area? Is it more than the first rectangle?
- ❖ What other rectangles can he make with 100 m of wire? Discuss which of these rectangles will have the biggest area?



Balbir's wife asked him to make a circle with a wire. She knew it had a area of 800 square meters.

❖ Why did Balbir not choose a rectangle? Explain.

So Kuldeep also tried many different ways to make a boundary for 800 square metres of land.

❖ He made rectangles A, B, and C of different sizes. Find out the length of the boundary of each. How much gold wire will he get for these rectangles?

40 m × 20 m

Gold wire for A = _____ meters

80 m × 10 m

Gold wire for B = __meters

800 m × 1 m

Gold wire for C = _____ meters

But then Kuldeep made an even longer rectangle …… See how longer!

8000 m × 0.1 m

So he will get ____ metres of gold wire!!

Now do you understand why the king fainted!!!

Can you make a rectangle with a still longer boundary? I made a rectangle 1 cm wide and 80000 m long. Imagine how long that boundary will be!!! With that much gold wire I can become the king!

Now Lets Us Do These

Q.NO.1 Find the area of the rectangle with sides 30 cm and 50 cm.

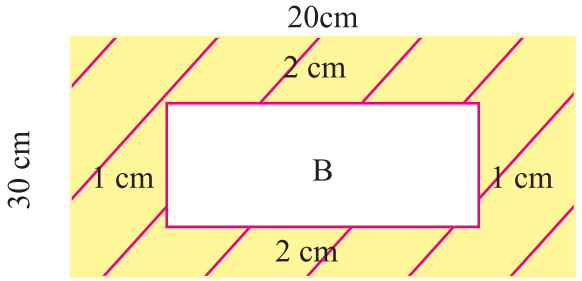
Q.NO.2 if the area of a square 'A' is 1600 sq. cm and if the area of a square B is 40sq.cm then find the number of squares of type B obtained from square A.

Q.No.3 If the area of a rectangle is 250 sq. cm and the length of rectangle is 25 cm then find the width of the rectangle.

Q.No.4 If the dimensions of a rectangle are 20 cm and 10 cm, then find the parameter of a rectangle.

Q.No.5 If the perimeter of a rectangle is 60 cm and it is 10 cm wide. Find its Length.

Q.No.6 From figure find the area of region B.

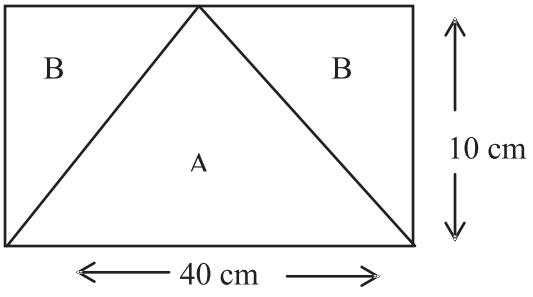


Q.NO. 7 In a rectangular plot of land:

A: Plot of land

B: Wet land

Find the area of B when area of A = 200 Sq. mts.



Answers

Q.No.1	1500 sq cm	Q.No.2	40
Q.No.3	10 cm	Q.No.4	60 cm
Q.No.5	40 cm	Q.No.6	200sq.cm
Q.N0.7	558 sqm		