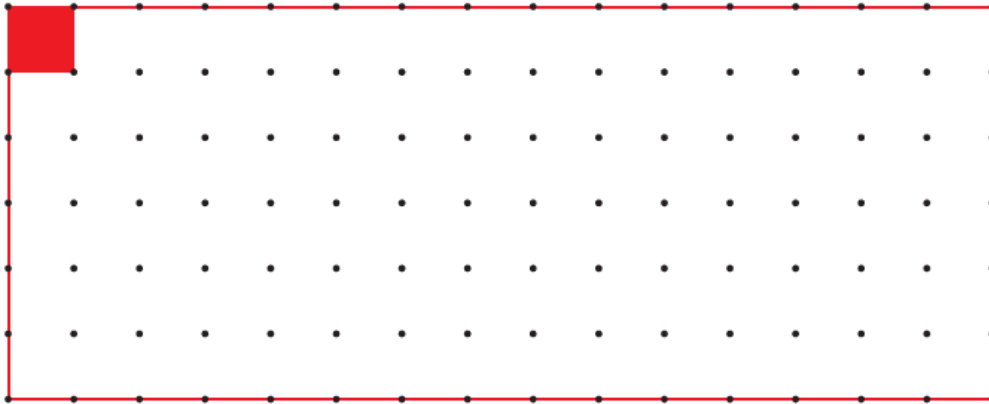


Class 5  
Sub-Maths  
Unit-3 (How Many Squares?)

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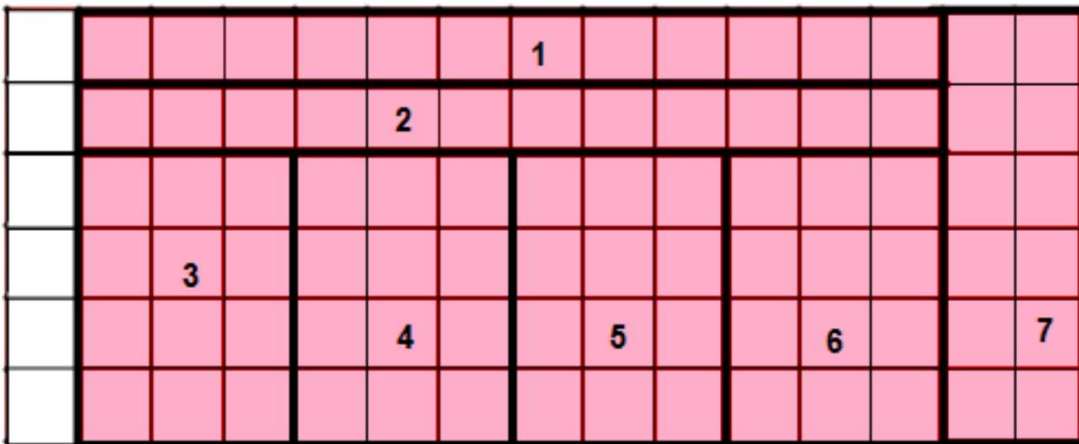
1.



(i) Measure the side of the square on dotted sheet. Draw here as many rectangles as possible using 12 such squares.

**Solution:-**

The side of the square on dotted sheet is 1 cm.



(ii) How many rectangles could you make?

**Solution:-**

We can make 7 rectangles.

2. Each rectangle is made out of 12 equal squares, so all have the same area, but the length of the boundary will be different.

(i) Which of these rectangles has the longest perimeter?

**Solution:-**

From the above figure we can say that, rectangle 1 and 2 has the longest perimeter.

We know that, perimeter of rectangle = 2 (length + breadth)

$$= 2 (1 + 12)$$

$$= 2 \times 13$$

$$= 26 \text{ cm}$$

**(ii) Which of these rectangles has the smallest perimeter?**

**Solution:-**

From the above figure we can say that, rectangle 3, rectangle 4, rectangle 5 and 6 rectangle has the smallest perimeter.

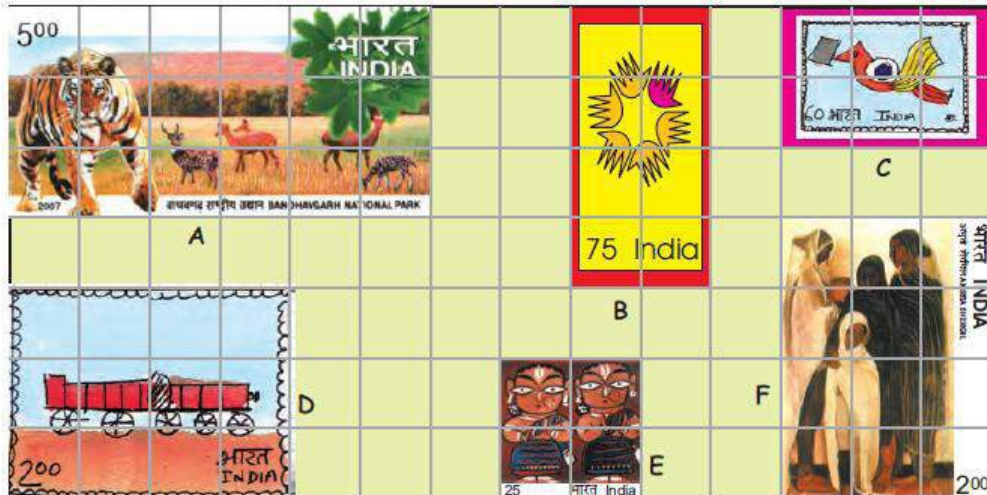
We know that, perimeter of rectangle = 2 (length + breadth)

$$= 2 (3 + 5)$$

$$= 2 \times 8$$

$$= 16 \text{ cm}$$

3.



Look at these interesting stamps.

(a) How many squares of one centimetre side does stamp A cover? \_\_\_\_\_  
And stamp B? \_\_\_\_\_

**Solution:-**

Stamp A covers 18 squares of one centimeter side, and Stamp B covers 8 squares of one centimeter side.

**(b) Which stamp has the biggest area?**

**Solution:-**

Stamp 'A' has biggest area, because it has 18 squares.

**(i) How many squares of side 1 cm does this stamp cover?**

**Solution:-**

This stamp has 18 squares of side 1 cm.

**(ii) How much is the area of the biggest stamp?**

**Solution:-**

The biggest stamp is in the shape of rectangle,  
The area of the biggest stamp is = length  $\times$  breadth  
=  $3 \times 6$   
= 18 square cm

**c) Which two stamps have the same area?**

**Solution:-**

Stamp 'D' and stamp 'F' have the same area.

**(i) How much is the area of each of these stamps? \_\_\_\_ square cm.**

**Solution:-**

We know that, area of rectangle = length  $\times$  breadth  
So, Area of stamp 'D' =  $3 \times 4$   
= 12 square cm  
Area of stamp 'F' =  $4 \times 3$   
= 12 square cm  
Therefore area of stamp 'D' is equal to area of stamp 'F'.

**d) The area of the smallest stamp is \_\_\_\_ square cm.**

**Solution:-**

The area of the smallest stamp is 4 square cm.  
Area of smallest stamp 'E' = length  $\times$  breadth  
=  $2 \times 2$   
= 4 cm<sup>2</sup>

**(i) The difference between the area of the smallest and the biggest stamp is \_\_\_\_ square cm.**

**Solution:-**

Area of the biggest stamp = 18 square cm  
Area of the smallest stamp = 4 square cm  
Then,  
The difference between the area of the smallest and the biggest stamp =  $18 - 4$   
= 14 cm<sup>2</sup>

#### **4. Guess**

**a) Which has the bigger area — one of your footprints or the page of this book?**

**Solution:-**

When comparing the area of footprints and the area of page of this book, the area of page of this book is bigger than footprints.

**b) Which has the smaller area—two five-rupee notes together or a hundred rupee note?**

**Solution:-**

A hundred rupee note has the smaller area.

**c) Look at a 10 rupee-note. Is its area more than hundred square cm?**

**Solution:-**

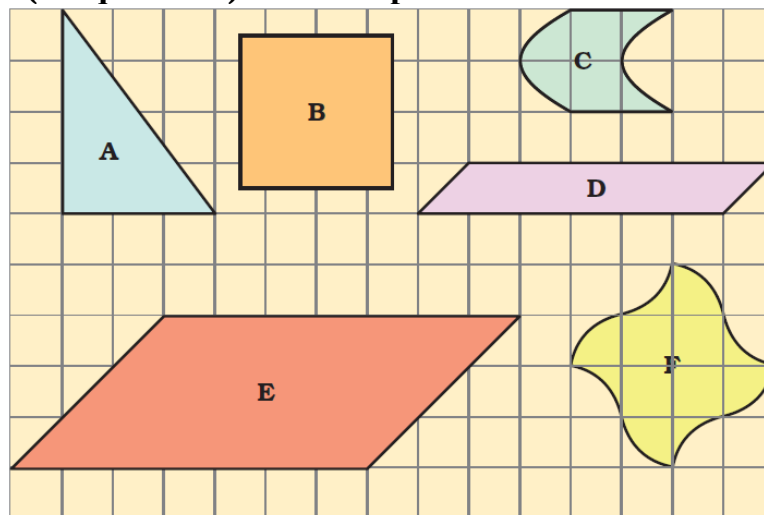
No, the area of 10 rupee note is not more than hundred square cm.

**e) Is the perimeter of the yellow shape more than the perimeter of the blue shape? Why?**

**Solution:-**

No, the perimeter of the yellow shape is less than the perimeter of the blue shape. With the help of a ruler, we can able find that the length of the boundary of the blue shape is more than the length of the boundary of the yellow shape.

**5. Write the area (in square cm) of the shapes below.**



**Solution:-**

Area of triangle fig A =  $\frac{1}{2} \times \text{base} \times \text{height}$

$$= \frac{1}{2} \times 3 \times 4$$

$$= \frac{1}{2} \times 12$$

$$= 6 \text{ square cm}$$

Area of square fig B = 4 complete square + 8 half squares + 4 quarter squares

$$= 4 + (\frac{1}{2} \times 8) + (\frac{1}{4} \times 4)$$

$$= 4 + 4 + 1$$

$$= 9 \text{ square cm}$$

Area of fig C = 2 complete square + 4 half square

$$= 2 + (\frac{1}{2} \times 4)$$

$$= 2 + 2$$

$$= 4 \text{ square cm}$$

Area of fig D = 5 complete square + 2 half square

$$= 5 + (\frac{1}{2} \times 2)$$

$$= 5 + 1$$

$$= 6 \text{ square cm}$$

Area of fig E = 18 complete square + 6 half square

$$= 18 + (\frac{1}{2} \times 6)$$

$$= 18 + 3$$

$$= 21 \text{ cm}^2$$

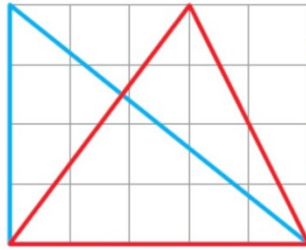
Area of fig F = 4 complete square + 4 more than half + 4 quarter square

$$= 4 + (\frac{3}{4} \times 4) + (\frac{1}{4} \times 4)$$

$$= 4 + 3 + 1$$

$$= 8 \text{ square cm}$$

**6. The blue triangle is half of the big rectangle. Area of the big rectangle is 20 square cm. So the area of the blue triangle is \_\_\_\_\_ square cm.**



**Solution:-**

From the question,

Area of the big rectangle is 20cm<sup>2</sup>.

Area of the blue triangle is half of the big rectangle =  $20 \div 2$

$$= 10 \text{ square cm}$$

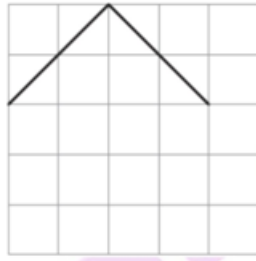
**7. Ah, in it there are two halves of two different rectangles!**



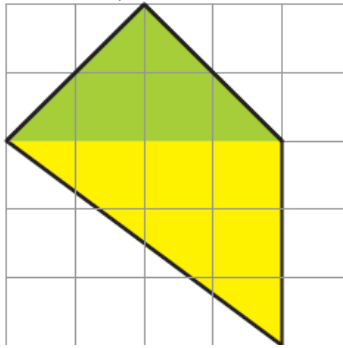
**Now you find the area of the two rectangles Sadiq is talking about. What is the area of the red triangle? Explain.**

From the figure, we can say that,  
 The orange rectangle contains 12 squares  
 So, area of orange rectangle = 12 square cm  
 Then, green rectangle contains 8 squares  
 So, the area of green rectangle = 8 square cm  
 Now, area of the orange portion of triangle =  $12 \div 2 = 6$  square cm  
 Area of the yellow portion of triangle =  $8 \div 2 = 4$  square cm  
 Therefore, area of red triangle =  $6 + 4$   
 = 10 square cm

**8. Suruchi drew two sides of a shape. She asked Asif to complete the shape with two more sides, so that its area is 10 square cm.**



**He completed the shape like this.**



**(i) Is he correct? Discuss.**

**Solution:-**

Yes, he is correct.

**(ii) Explain how the green area is 4 square cm and the yellow area is 6 square cm.**

**Solution:-**

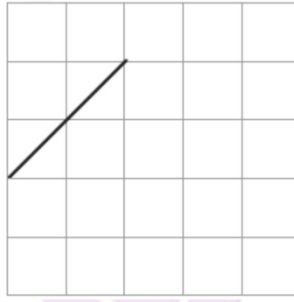
Green area contains = 2 complete square + 4 half square  
 =  $2 + (\frac{1}{2} \times 4)$   
 =  $2 + 2$   
 =  $4 \text{ cm}^2$

Yellow area contains = 3 complete square + 2 more than half + 2 half filled

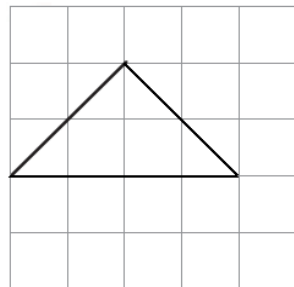
$$\begin{aligned}
 &= 3 + 2 + (\frac{1}{2} \times 2) \\
 &= 3 + 2 + 1 \\
 &= 6 \text{ cm}^2
 \end{aligned}$$

**Practice time**

**(1) This is one of the sides of a shape. Complete the shape so that its area is 4 square cm.**

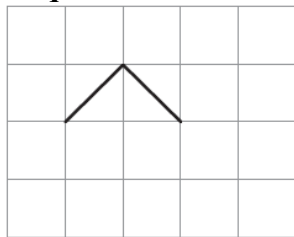


**Solution:-**

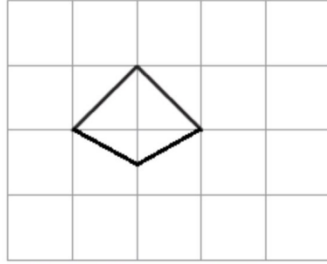


The completed shape contains = 2 complete square + 4 half square  
 $= 2 + (\frac{1}{2} \times 4)$   
 $= 2 + 2$   
 $= 4 \text{ cm}^2$

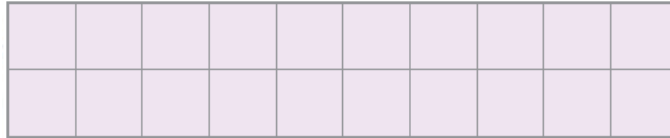
**2. Two sides of a shape are drawn here. Complete the shape by drawing two more sides so that its area is less than 2 square cm.**



**Solution:-**

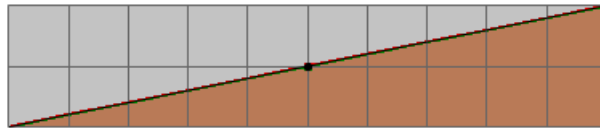


3. Here is a rectangle of area 20 square cm.



a) Draw one straight line in this rectangle to divide it into two equal triangles. What is the area of each of the triangles?

Solution:-



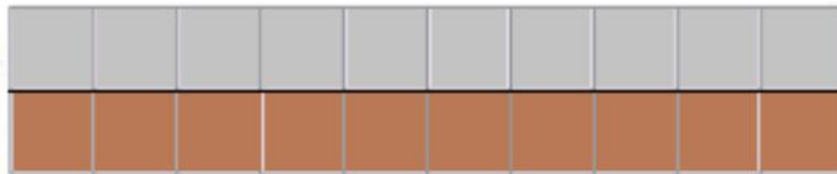
Area of rectangle =  $10 \times 2$   
 $= 20 \text{ cm}^2$

Then, area of two equal triangles =  $20 \div 2$   
 $= 10 \text{ cm}^2$

Because, it is given that straight line divides rectangle in to two equal triangles.

b) Draw one straight line in this rectangle to divide it into two equal rectangles. What is the area of each of the smaller rectangles?

Solution:-

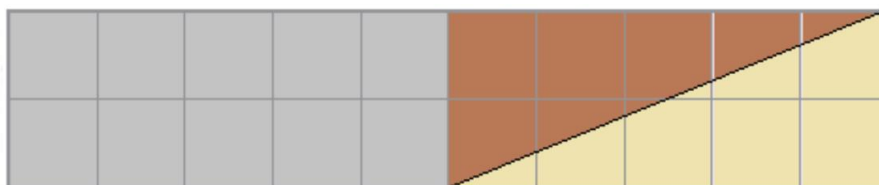


Area of big rectangle =  $10 \text{ cm}^2$

The area of each of the smaller rectangle =  $20 \div 2$   
 $= 10 \text{ cm}^2$

c) Draw two straight lines in this rectangle to divide it into one rectangle and two equal triangles.

Solution:-





**(i) What is the area of the rectangle?**

**Solution:-**

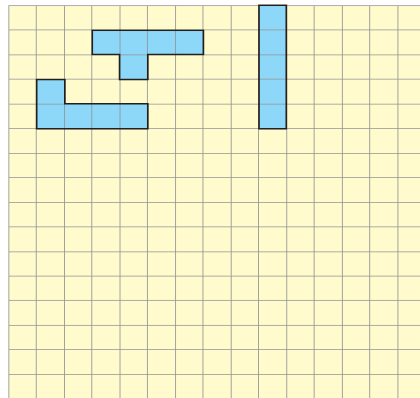
$$\begin{aligned} \text{Area of rectangle} &= \text{length} \times \text{breadth} \\ &= 2 \times 6 \\ &= 12 \text{ cm}^2 \end{aligned}$$

**(ii) What is the area of each of the triangles?**

**Solution:-**

$$\begin{aligned} \text{Area of each triangle} &= \frac{1}{2} \times \text{area of smaller rectangle} \\ &= \frac{1}{2} \times 12 \\ &= 6 \text{ cm}^2 \end{aligned}$$

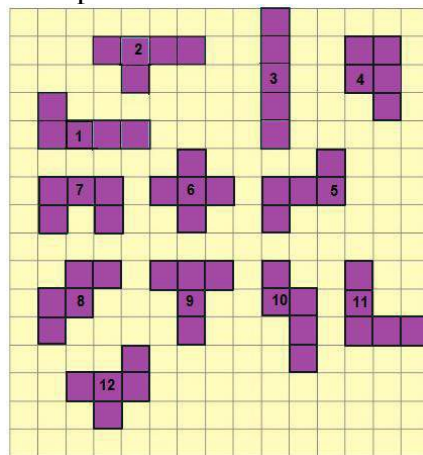
**4. Puzzle with five squares**



**a) How many different shapes can you draw?**

**Solution:-**

Using 5 squares, I can draw 12 shapes as show in the below,



**b) Which shape has the longest perimeter? How much?**

**Solution:-**

Shape 4 has the smallest perimeter out of 12 shapes, rest of the shapes have same perimeter. i.e. = 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 = 12 cm

**c) Which shape has the shortest perimeter? How much?**

**Solution:-**

Out of 12 shapes 4 has the smallest perimeter.

i.e. =  $1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 = 10$  cm.

**d) What is the area of the shapes? \_\_\_\_\_ square cm. That's simple!**

**Solution:-**

There are 12 shapes each shapes have complete five squares. Area of 1 square is equal to  $1 \text{ cm}^2$ .

So, Area of each shape =  $1 \times 5 = 5 \text{ cm}^2$