CHAPTER - 9

Symmetry

You have already read about symmetry in the last class.



In this figure the dotted line is the axis of symmetry because both the figures overlap each other on folding through this line. If a mirror of the figure shown is



placed on this line then the image in the mirror will be same as the hidden part of the figure. So the figure relative to this symmetrical axis is symmetrical .

Now, look at the other dotted line of the figure. Do both the part of the figure overlap each other completely on folding through the line. You see that they donot overlap each other completers. Along with that if a mirror is placed on this line then the image in the mirror is not similar to the hidden part of the figure. So this is not the line of symmetry and the figure is not symmetrical through this axis line. Now you draw different liner on this figure and see whether this figure is symmetrical about any of these liner.

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Exercise

1. Out of the figures given below which ones are symmetrical about the given line? Tick (\checkmark) on the symmetrical figures.



2. Draw all possible symmetrical axis for the folloving figures.



Isosceles triangle -

Now complete the table given below -

| Name of figures | Total Number of symmetrical axis in the figure |
|----------------------|--|
| Equilateral triangle | |
| Square | |
| Rectangle | |
| Isoceles triangle | |
| Kite | |
| Roller | |

Let's Do and learn.

(If we) Rotate the given figure from its place in such a way that the top most red patel comes down and the lower most green patel goes up, then it is called half rotation of the figure.



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After half rotation the figure will look like this-



Does this figure look the same before and after half rotation?

You have seen that this figure.does not look the same in both the situations. So after half rotation this figure is not rotational symmetry figure.

Now look at these figure -



fig. 1 (Before half rotation)



fig. 2 (After half rotation)

You see that the figure (2) look the same after and before half rotation from its place. So after half rotation this figure is rotational symmetric.

The proprty of figures to look like the same after rotation form its place is called rotational symmetry -

Ways of rotation -

Half rotation at its place (Half rotation)



Quarter rotation at its place (Quarter rotation)

The first method

The other method



You have seen that rotation can be in two ways clockwise and anti-clockwise.

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Excecise

 Which of the following figures look the same after helf rotation from its place? Tick (√) on them.



2. Which of the following figures are rotational symmetric after half rotation ? $Tick(\checkmark)$ on them.



3. Which of the following letters are rotational symmetric after half rotation? $Tick(\checkmark)$ on them.



Quarter rotation -



How will the following figures look after quarter rotation ? Draw them.

