

The mirror never lies?

Santhosh is coming to meet Radha at 6:15.

Radha: I have only 5 minutes to get ready.

But Radha is wrong. She has 25 minutes. Why is Radha confused?



Radha soon realised her mistake. She decided to test Santhosh. Radha showed a letter in the mirror and Santhosh had to guess.

M is easy. It looks the same in the mirror. But P looks different.

**Do This**

- Here are some letters. Tick the ones which look different in the mirror.

B Z Q V

A F H



I can tell which letter will look the same without using a mirror.

Radha wrote some letters as shown here. She then folded the paper into half and opened it.

Radha: When I fold the paper the left half of the letter completely covers the right half. These letters are symmetrical because one half covers the other half completely. These letters are Symmetrical because one half completely covered the other half and they will look the same in the mirror.



Activity

Colour half - See the full

Take a paper and fold it. Draw half the butterfly as shown here-



Put a strip of mirror on the fold. What do you see?

Try This

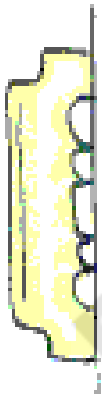
1. Put a mirror on the line and get a complete figure.



Do This

1. Complete the pictures.

(a)



(b)



(c)



(d)



(e)



Lines which divide into equal halves

Draw lines on the letters H, I, K and D to get halves that cover each other.

Santhosh: I have divided K like this

Radha: I have divided D like this



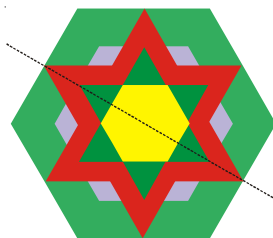
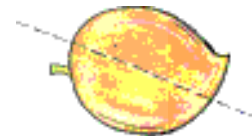
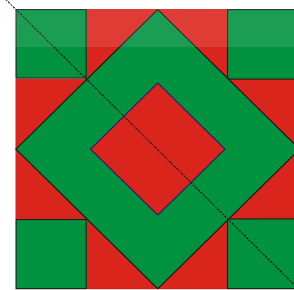
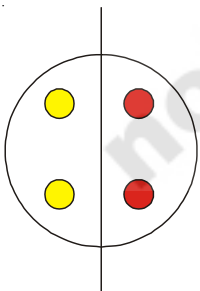
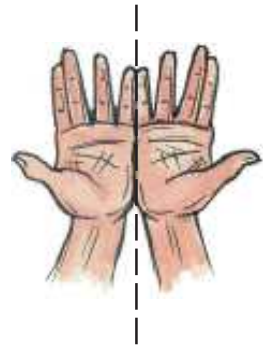
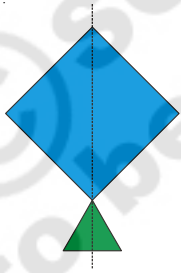
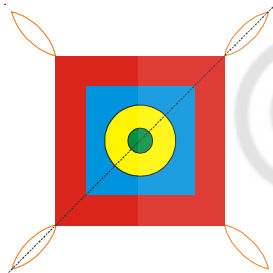
Santhosh: H and I can be divided in more than one way



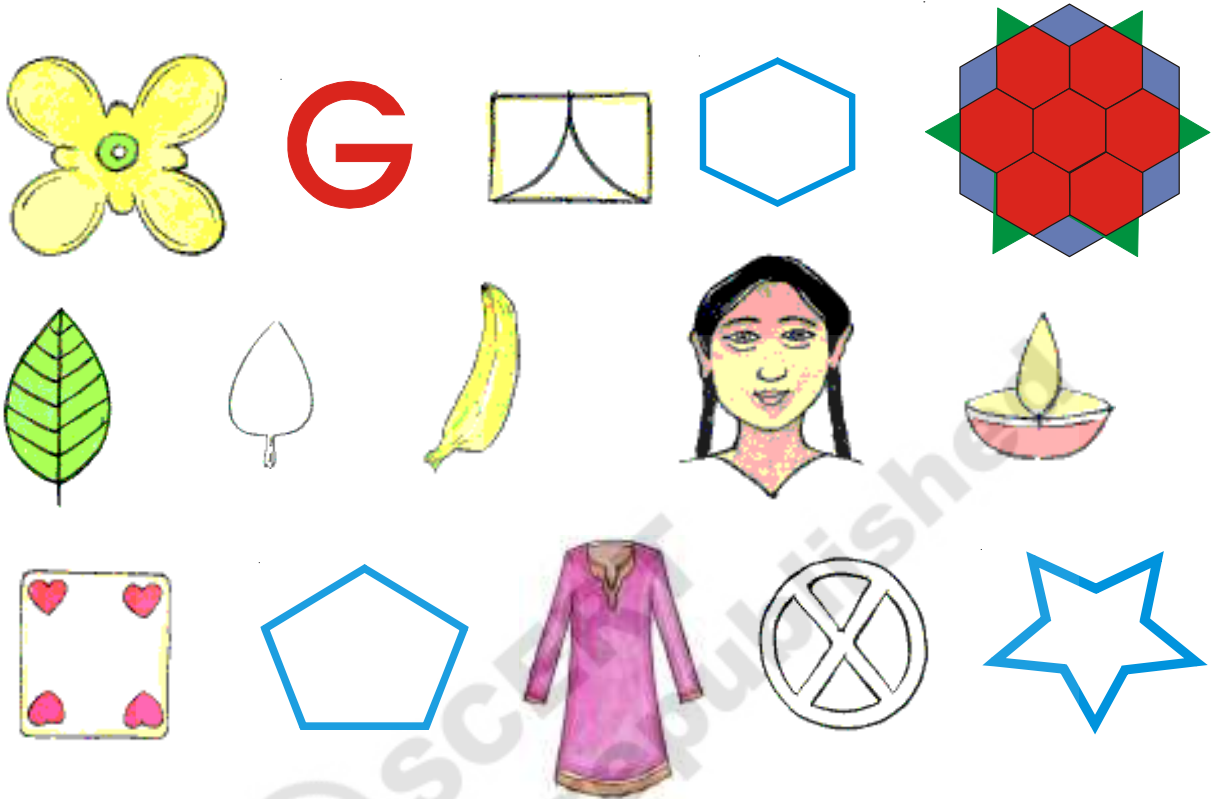
H, K, I, D are symmetrical letters and the lines drawn by Santhosh and Radha are called the **lines of symmetry**.

Do This

- See if the lines drawn by Santhosh and Radha are lines of symmetry. Put (×) if they are not. Make sure that the colours also match.



2. Draw lines of symmetry for the given figures. Put (×) on the figure which has no line of symmetry.



Try This

Draw two lines of symmetry for X. The two halves formed should cover each other.



Activity

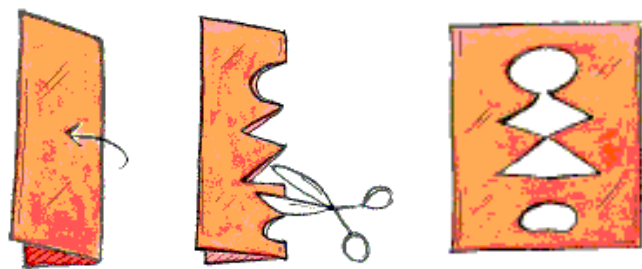
Symmetrical figures by cutting paper.

Take a paper and fold it.

Cut it as shown

Open it and see the design

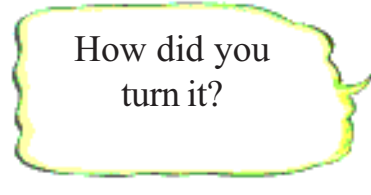
Will one half cover the other?



Half a turn or less



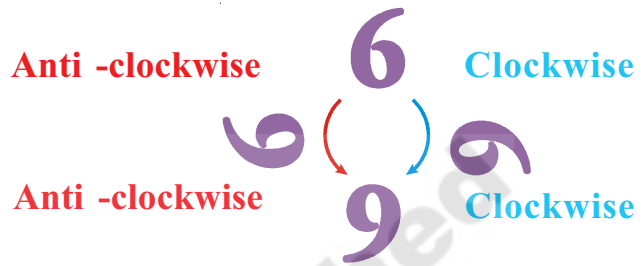
Look Radha! I get 9 if I turn 6.



How did you turn it?

We can turn 6 in two ways.

We can turn it like the hands of a clock. Or we can turn it in the opposite direction.



Either way we will get 6 on taking one complete turn. Half turns in both directions will give us 9.

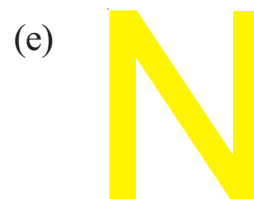
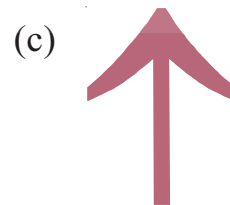
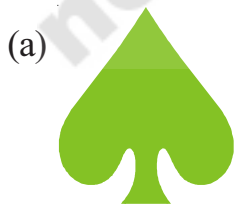
Try This

1. In which of these digits do you get the same digit after half a turn?





1 0 8 3 5









Do This

1. Look at the pictures. Draw how they will look after a half $\left(\frac{1}{2}\right)$ turn.



2. How will the figure look after a half $\left(\frac{1}{2}\right)$ turn? Tick (\checkmark) the correct option.

(a)  (b)  (c)  (d) 

(i)  (ii)  (i)  (ii)  (i)  (ii)  (i)  (ii) 

3. We get N again if we give it a $\frac{1}{2}$ turn. Think of three more English letters that look the same after $\frac{1}{2}$ turns.

Turn a quarter $\left(\frac{1}{4}\right)$

Look at the figure. 'I' has turned half of a $\frac{1}{2}$ turn.

So we say that it has turned a quarter $\left(\frac{1}{4}\right)$ turn.

See some more quarter turns.



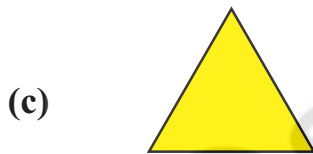
Notice, they are all turning anti-clockwise. How will they look if we give them clock-wise $\frac{1}{4}$ turn?

Try This

1. Some figures are given. Draw how they will look after $\frac{1}{2}$ turn and $\frac{1}{4}$ turn.

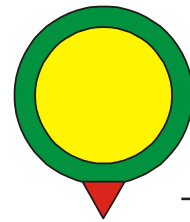
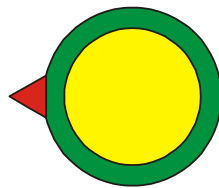
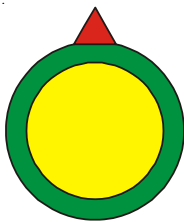
$\frac{1}{4}$ turn

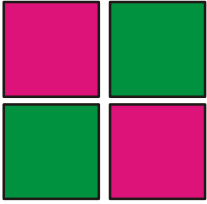
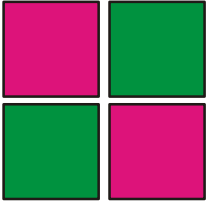
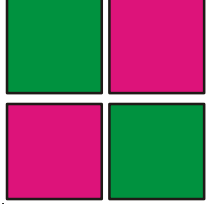
$\frac{1}{2}$ turn

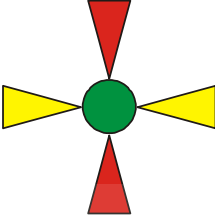
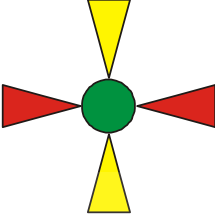
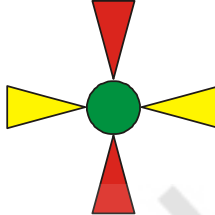


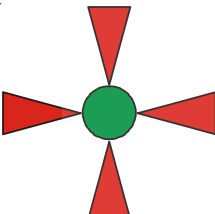
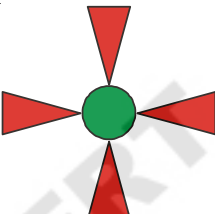
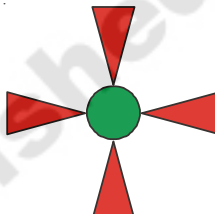
2. Some figures are given below. How will they look after $\frac{1}{2}$ turn and $\frac{1}{4}$ turn. Write next to the two options given against each? Which figures look the same after a $\frac{1}{4}$ turn? Which look the same after a $\frac{1}{2}$ turn?

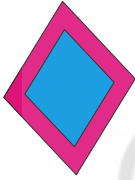

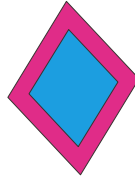
(a)

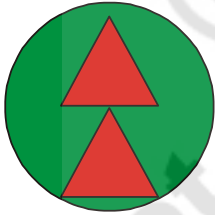
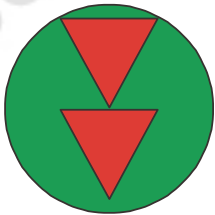
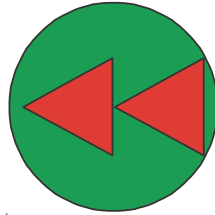


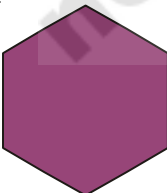
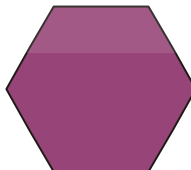
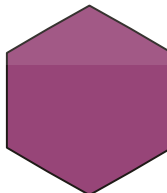
(b)   _____  _____




(c)   _____  _____

(d)   _____  _____

(e)   _____  _____

(f)   _____  _____

(g)   _____  _____

(h)   _____  _____