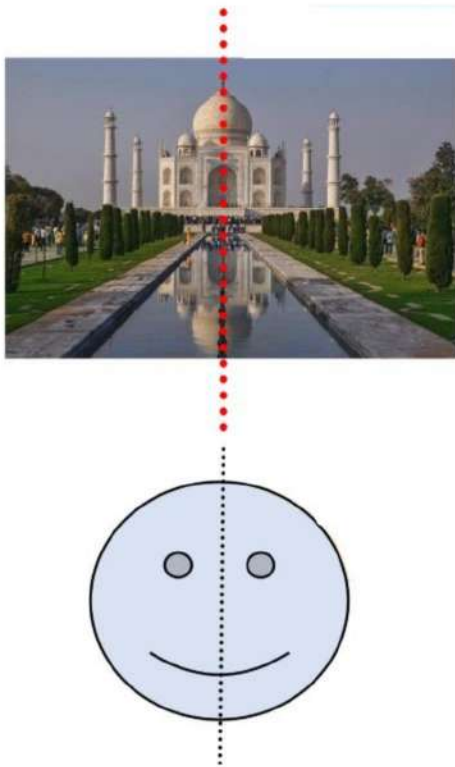# Chapter 13

Symmetry

Introduction to Symmetry

Introduction

When we see certain figures with evenly balanced proportions, we say "They are symmetrical".

If we can fold a picture in two halves such that the left part atches the right part exactly, then that picture is said to have aline of symmetry.
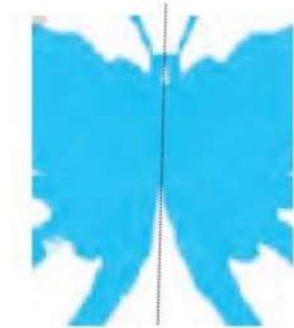Example:

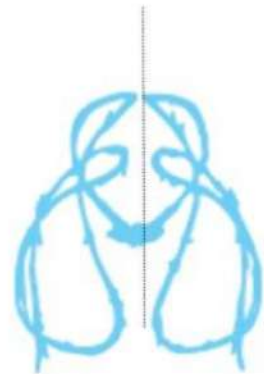Making symmetric figure: Ink-blot devils

To make a symmetrical figure using inkblot,

Take a piece of paper and fold it in two halves. Spill a few drops of ink on one side and press the halves together.
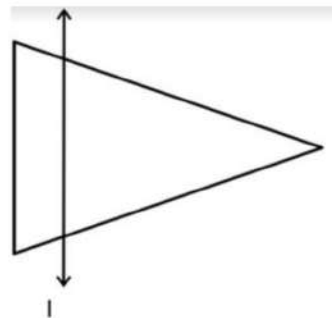

Inked-string patterns

Take a piece of paper and fold it in two halves. Arrange a short length of string dipped in ink on one side and press the halves together.

Example: In the figure, l is the line of symmetry.
Draw the image of the triangle and complete the diagram so that it becomes symmetric.
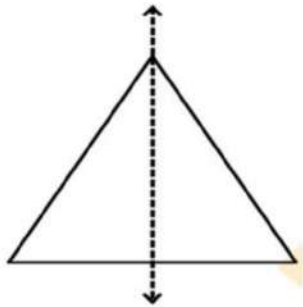(REFERENCE: NCERT)

Sol.
Here, if we fold it from line 'l' the left and right halves are not exact.

So, l is not the line of symmetry.

We draw the triangle as shown below to get the required symmetrical image of the triangle with the given line.
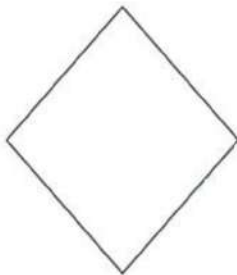
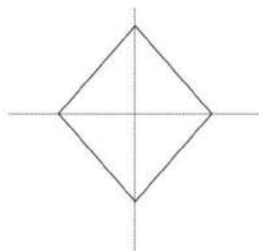## Multiple Lines of Symmetry

Figures with two lines of symmetry

Rhombus

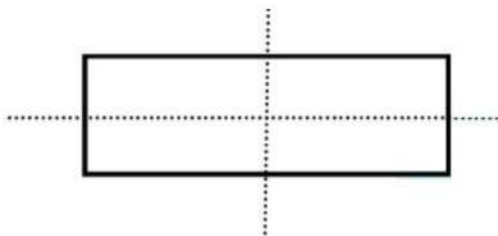Rhombus is a type of quadrilateral.

Let us see the lines of symmetry.

Thus, a rhombus has a single line of symmetry.

Rectangle

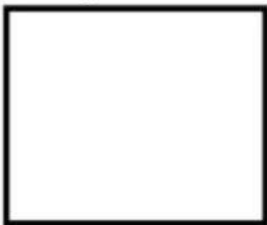A rectangle is a quadrilateral such that opposite sides are equal and each angle is 90°.

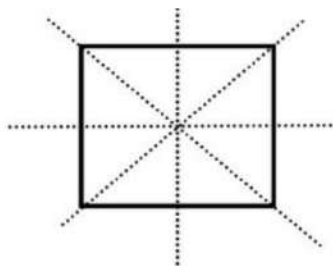**Let us see the lines of symmetry for the rectangle.**

Figures with multiple lines of symmetry

Square

Square is a quadrilateral whose sides are equal and each angle is 90°.
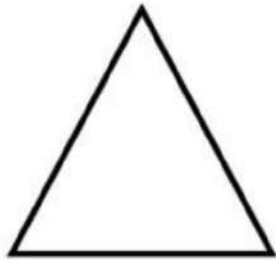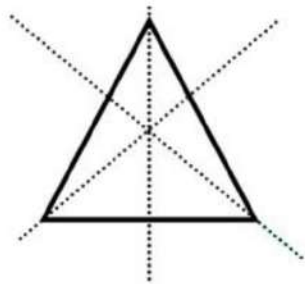
Let us see different lines of symmetry of the square.

Equilateral Triangle

The equilateral triangle is a triangle whose sides are equal and each angle is 60°.
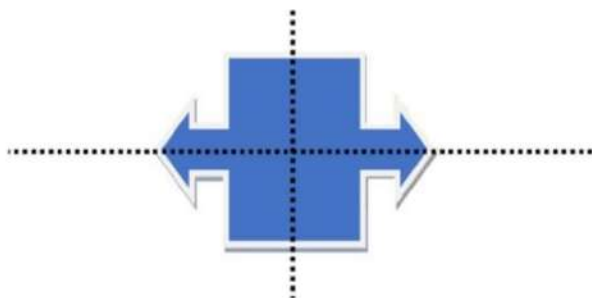

Let us see different lines of symmetry of the equilateral triangle.

Example: Find the number of lines of symmetry of the figure below.

Sol.

Thus, the given figure has two lines of symmetry.

Reflection and Symmetry

The object and its image are symmetrical with reference to the mirror line. If the paper is folded, the mirror line becomes the line of symmetry.
We then say that the image is the reflection of the object in themirror line.