A Mira is a plastic device that acts like a mirror that you can see through. A Mira is transparent and reflects the image of a figure on the other side. The drawing edge of a MIRA is beveled. Always place your MIRA on the paper with the drawing edge down.

**SYMMETRY**

If you can reflect or flip a figure over a line and the figure is unchanged (maps onto itself), then the figure has reflectional symmetry or line symmetry. The line of symmetry divides a figure with reflectional symmetry into two congruent parts.

Examples – Use your Mira to verify that the dashed lines on the figures below are lines of symmetry.

NON-Examples – Use your Mira to verify that the dashed lines on the figures below are NOT lines of symmetry.

For each figure below, use your Mira to find all the lines of symmetry. Show each line of symmetry as dashed line. Name each figure.

Find all the lines of symmetry for the **regular** polygons below.

|  |  |
| --- | --- |
|  |  |
|  |  |

Generalize a rule about the number of lines of symmetry for **regular** polygons.

**REFLECTIONS**

Place your Mira so that the image of circle A fits on circle B and draw a line along the beveled edge.

B

A

 The line you have drawn is called the Mira line. It represents the line of reflection.

For each figure below, fit the image of one of the figures onto the other, and draw the Mira line.





Use a Mira to draw the reflection of each figure through the given line.

Consider pentagon *ABCDE* below. This initial figure is known as the pre-image.

* Use the Mira to draw the reflection of ABCDE.
* Label the image. The image point of point A is $A'$ , point B is $B'$, etc.
* Draw a segment connecting point B and $B'$.
* Label the intersection of $\overbar{BB'}$ point M.
* The refection line is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bisector of the segment joining a point in the original figure (pre-image) with its reflection (image).

 A

 D

 E



B

C

The reflected figure is known as the image.

The original figure is known as the pre-image.

Describe in your own words what a reflection is.

Coordinate Plane Reflections

Given the triangle with vertices *A*(1,1), *B*(5,1), and *C*(5, 4). Draw and label Δ$ABC$*.* Reflect

Δ$ABC$across each line. Label the reflection Δ$A'B'C'$. Label the ordered pair for each coordinate in the pre-image and image.

1. $x=3$



1. $y=x+1$



1. $y=2$



1. $x=-1$



1. y-axis



1. x-axis

