**Math 9 Lesson 1-2 – Line Symmetry**

What is symmetry?

How many lines of symmetry do each of the following have?





A line of **symmetry** is also called a **line of reflection.**

Example 1:

The line of symmetry doesn’t necessarily have to be on a shape. For example, if you were to look in a mirror, the mirror is the line of symmetry. However, you will be standing the same distance away from the mirror in your reflection. Same goes for shapes; we can have a line of symmetry between two congruent shapes.

Example 2:

 A:

B:

 C:

 D:

We can also use a coordinate grid to draw shapes and their reflection images. We always label the corresponding vertices in the image with the same letters, but add a little ‘tick’ mark next to it to show that it’s not the original.

Example 3: Draw the image of each quadrilateral after the reflections given below:

1. A reflection in the horizontal line through 2 on the y axis



1.  A reflection in the vertical line through 6 on the x axis



1. A reflection in an oblique line through (0,0) and (6,6)



We could also be asked to **translate** and object which means simply sliding it from one place to another. We typically use mapping notation to tell us where to move to

Example: (x🡪x + 3, y🡪y -4) would mean translate each vertex horizontally 3 units to the right, and vertically 4 units down.

Translate the following image using the directions given :

(x🡪x - 2, y🡪y + 1)

**Big Ideas:**

1. **How do you identify whether a shape has a line of symmetry?**
2. **How are a line of reflection and a line of symmetry related?**

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