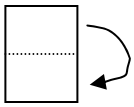
Line Symmetry

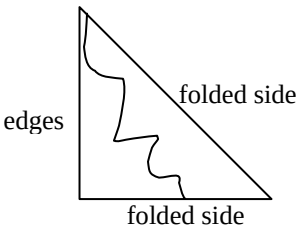
1. a. Using a blank sheet of square paper, carefully fold the paper in half.



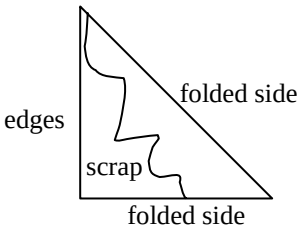
b. Now fold the paper in half again.

c. Fold once more diagonally.

d. Draw a design on one side of the paper.
For example:



e. Carefully cut along the drawn line.
Throw away the scrap.



f. Sketch what your design will look like if it is unfolded completely.

g. Unfold your design and compare it to the sketch.

2. A design has **line symmetry** if the design can be folded along one line and one side is the mirror image of the other. The line is called the **line of symmetry**.

How many lines of symmetry does your design have? Check your answer by folding your design along each line of symmetry.

3. Line symmetry is sometimes called **reflectional symmetry**. Using what you know about line symmetry, why does the word reflectional make sense?

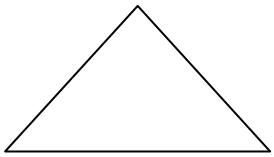
4. Which letters of the alphabet have reflectional symmetry?

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

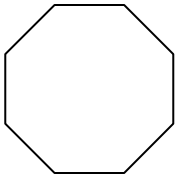
Line Symmetry (Continued)

5. For each of the following shapes, draw the line(s) of symmetry.

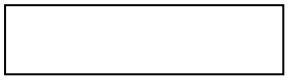
a.



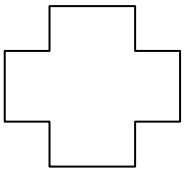
b.



c.



d.



e.

f.

6. a. Draw a polygon that has one line of symmetry. A figure with only one line of symmetry is said to have **bilateral symmetry**.

   b. Draw a polygon that has two lines of symmetry.

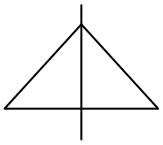
   c. Draw a polygon that has three lines of symmetry.

   d. Draw a polygon that has four lines of symmetry.

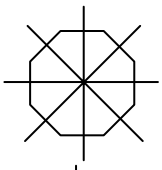
7. Does a line of symmetry always pass through the vertices of the figure? Use mathematics to justify your answer.

Answers:

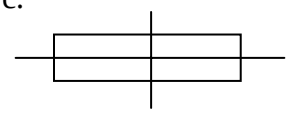
2. Answers will vary depending on student designs.
3. Using the term reflectional symmetry makes sense because one side of the line of symmetry is a reflection of the other side of the line.
4. A, B, C, D, E, H, I, K, M, O, T, U, V, W, X, Y (check font to be sure)
5. a.



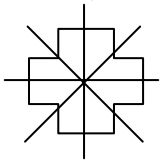
b.



c.

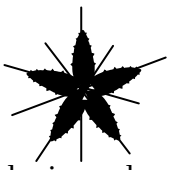


d.



e.

f.



6. a. Answers will vary (example: isosceles triangle).
   b. Answers will vary (example: rectangle).
   c. Answers will vary (example: equilateral triangle).
   d. Answers will vary (example: square).
7. No, for example, a rectangle's lines of symmetry pass through the midpoints of each side.