

Reflection Review Examples

1) Point A(6,3) is reflected in the x-axis. Find the coordinates of A', its image.

$A'(6, -3)$

↓  
change y sign

2) What are the coordinates of A', the image of point A(-5,1) after a reflection in the y-axis?

$A'(5, 1)$

↓  
change x sign

3) What is the image of the point (-3,2) when it is reflected in the origin?

change both signs  
 $(3, -2)$

4) What are the coordinates of N', the image of N(5, -3) under a reflection in the origin?

$N'(-5, 3)$

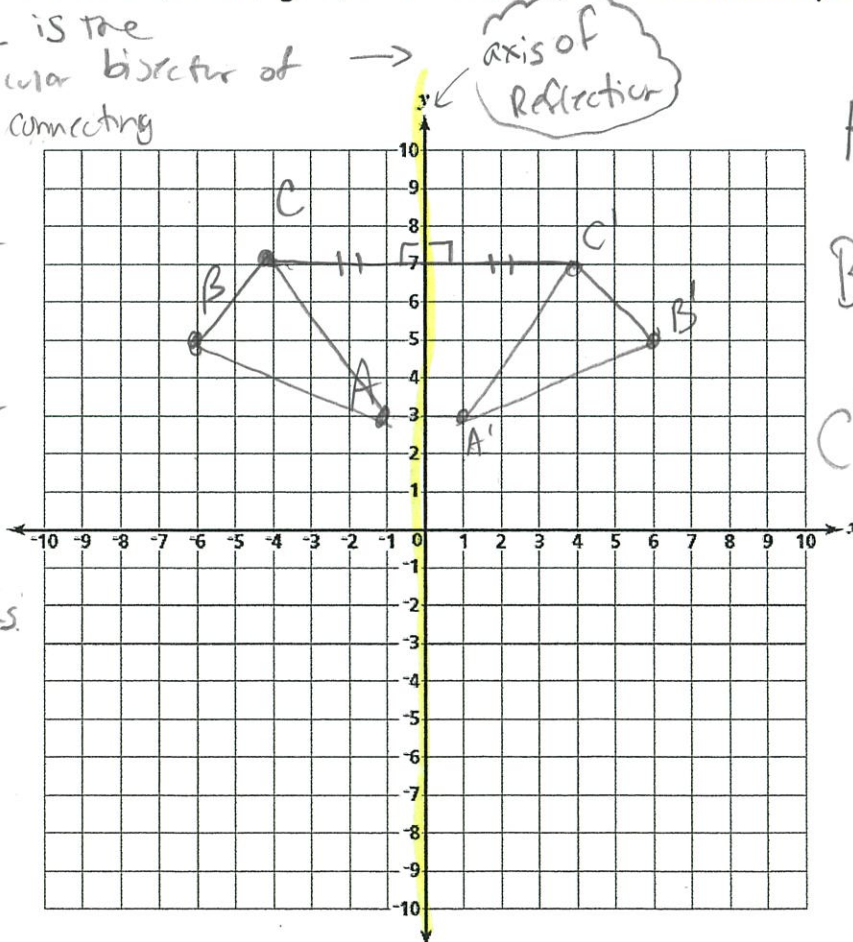
change both signs

5) Triangle ABC has coordinates A(-1,3), B(-6, 5), and C(-4,7).

(a) Sketch and label  $\triangle ABC$ .

(b) Graph and label  $\triangle A'B'C'$ , the image of  $\triangle ABC$  after a reflection in the y-axis. → change x

this line is the perpendicular bisector of the segment connecting the original points to their corresponding image point. It creates right angles + it divides the segment into 2 equal sections.



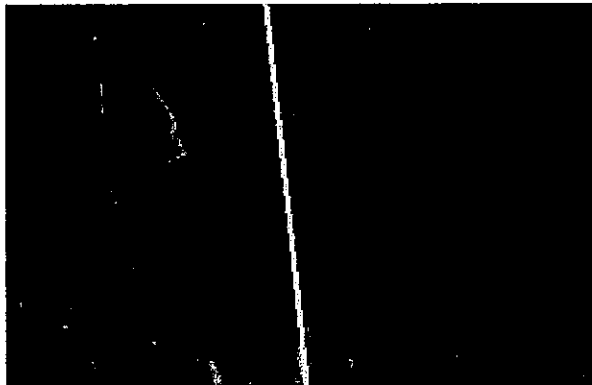
$A'(1, 3)$   
 $B'(6, 5)$   
 $C'(4, 7)$

## LINE SYMMETRY

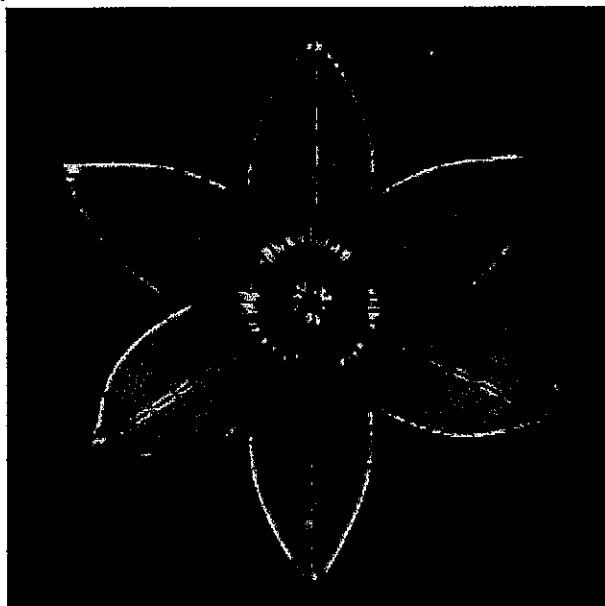
Line symmetry, or just symmetry, occurs when two halves of a figure mirror each other across a line. The line of symmetry is the line that divides the figure into two mirror images. A simple test to determine if a figure has line symmetry is to fold the figure along the supposed line of symmetry and see if the two halves of the figure coincide. A figure has line symmetry if the figure can be mapped onto itself by a reflection in the line.

Examples:

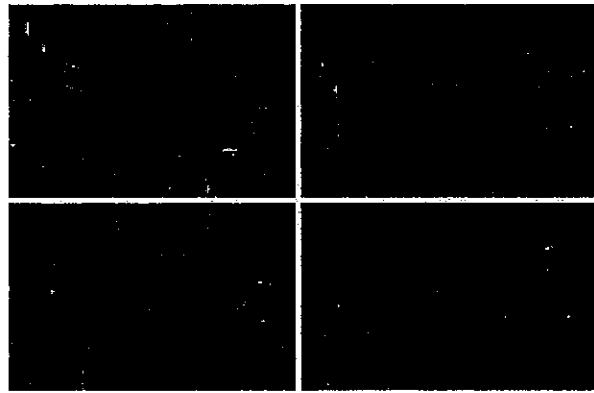
1) Nature displays **line symmetry** in some of its most beautiful work. The balanced arrangement of symmetry creates pleasing and attractive forms. The white line is the line of symmetry on the butterfly.



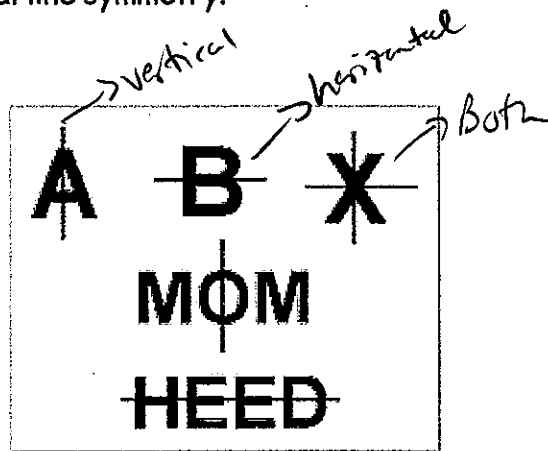
2) Many flowers possess **line symmetry**. The biologist's term for line symmetry is "bilateral symmetry". The black lines are the lines of symmetry.



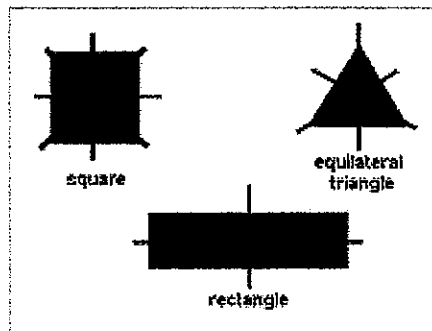
Mosaics and art work often demonstrate the concept of reflections and line symmetry. This drawing has two lines of symmetry, as shown by the white lines.



4) Certain letters of the alphabet and words possess line symmetry (such as the samples in the photo). Notice that some possess vertical line symmetry, some possess horizontal line symmetry, and some possess BOTH vertical and horizontal line symmetry.



5) Certain geometric figures possess line symmetry. The figures in the photo are only a sampling of the geometric figures that possess symmetry.



Name: \_\_\_\_\_

Date: \_\_\_\_\_

REFLECTION / SYMMETRY WORKSHEET

1) Which letter has *both* vertical and horizontal line symmetry?

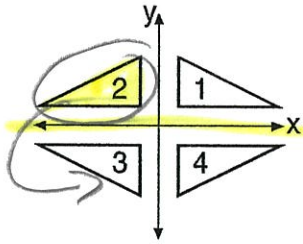
A) E

B) T

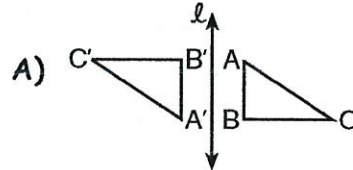
C) M

D) ~~X~~

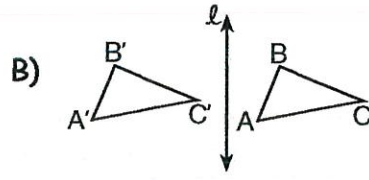
2) In the accompanying diagram, what triangle is the image of  $\Delta 2$  after a reflection in the x-axis?



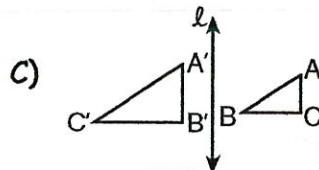
3) Which one of the following diagrams represents a reflection in line  $l$ ?



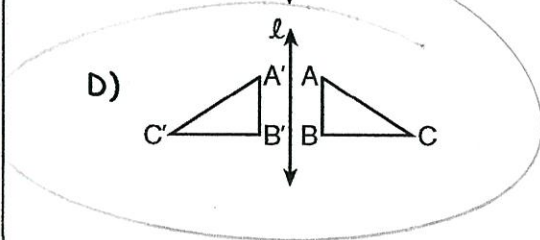
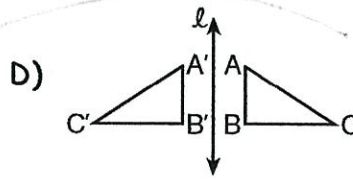
Rotation



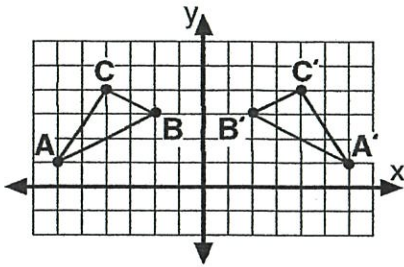
Translation



Dilation



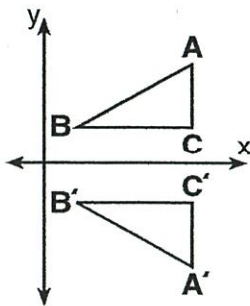
- 4) In the accompanying diagram,  $\triangle A'B'C'$  is the image of  $\triangle ABC$ .



What type of transformation is shown in the illustration?

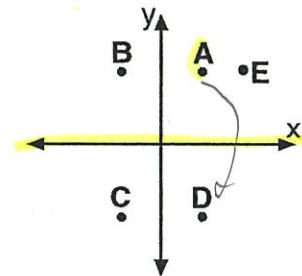
- A) line reflection
- B) translation
- C) rotation
- D) dilation

- 5) In the accompanying diagram, what type of transformation makes  $\triangle A'B'C'$  the image of  $\triangle ABC$ ?



- A) translation
- B) reflection in the x-axis
- C) rotation centered at the origin
- D) dilation

- 6) In the accompanying diagram, what point may be the image of point A after a line reflection in the x-axis?

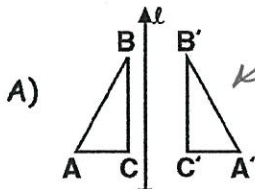


- A) D
- B) C
- C) B
- D) E

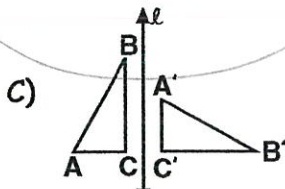
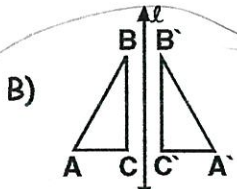
- 7) Which kind of symmetry does the word **TOOT** have?

- A) vertical line symmetry, only
- B) both vertical and horizontal line symmetry
- C) horizontal line symmetry, only
- D) neither horizontal nor vertical line symmetry

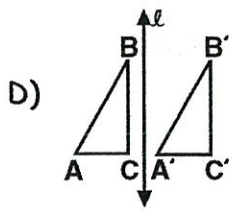
8) In which one of the following figures is  $\triangle A'B'C'$  a reflection of  $\triangle ABC$  in line  $\ell$ ?



NOT a reflection, B/C they are not the same distance from the line of reflection (Reflection + translation)

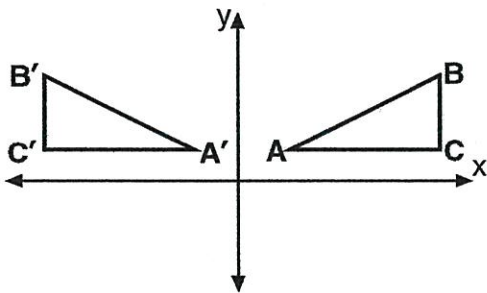


Rotation



Translation

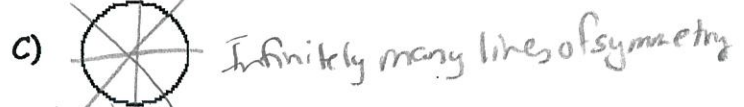
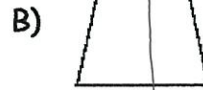
9) In the accompanying diagram,  $\triangle A'B'C'$  is the image of  $\triangle ABC$ .



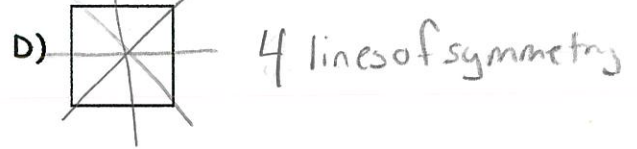
What type of transformation is shown?

- A) translation
- B) dilation
- C) rotation
- D) reflection

10) Which figure does *not* have line symmetry?

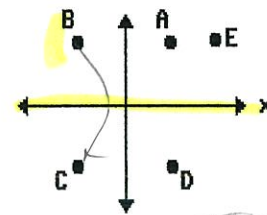


Infinitely many lines of symmetry



4 lines of symmetry

11) In the accompanying diagram, which point may be the image of point B after a line reflection in the x-axis?



- A) E
- B) D
- C) C
- D) B