

7.5 Reflections and Line Symmetry



Taj Mahal is a famous example of symmetry in architecture.

Many parts of the building and grounds were designed and built to be perfectly symmetrical.

Symmetry creates a sense of balance.

line symmetry

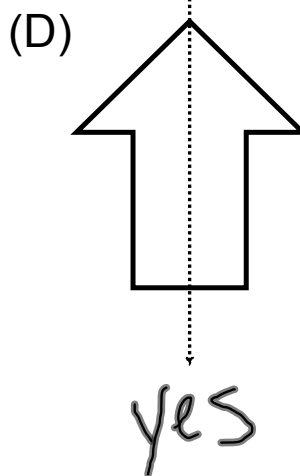
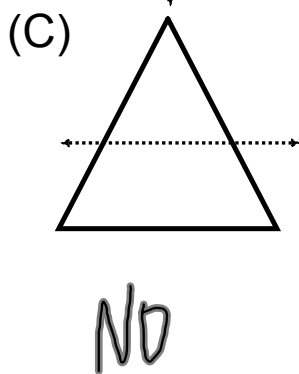
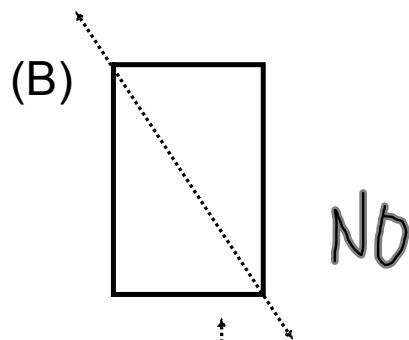
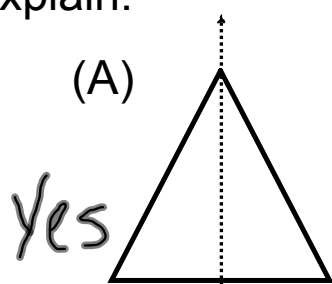
- a figure is divided into 2 congruent parts using a line of symmetry (mirror image)
- one half of the figure is reflected exactly onto the other half
- a figure may have more than one line of symmetry

The line of symmetry (also called line of reflection) can be:

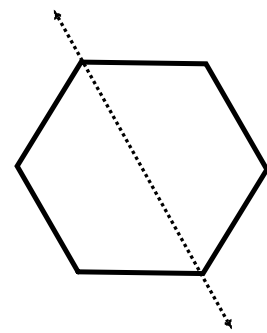
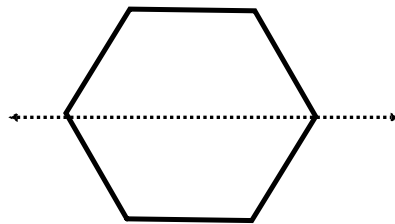
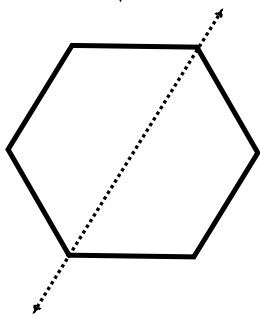
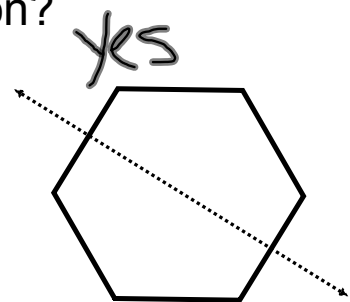
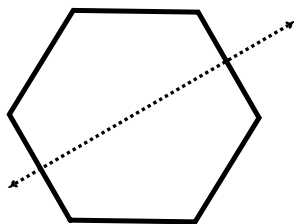
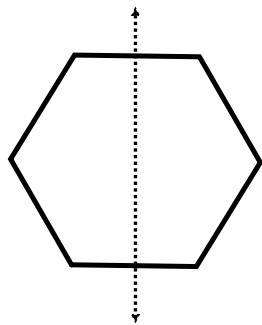
- horizontal
- vertical
- oblique



Is the dashed line in each figure a line of symmetry?
Explain.



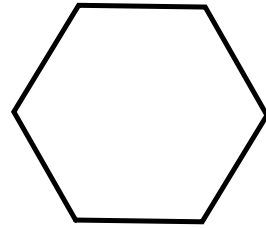
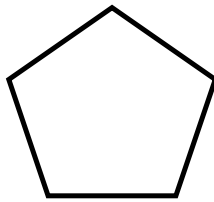
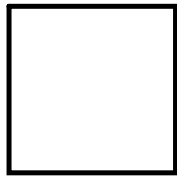
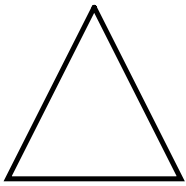
Is each a line of symmetry for the hexagon?



Can anymore lines of symmetry be drawn for a hexagon?

no!

Investigate the lines of symmetry for regular polygons.



Number of <i>points</i>	Number of Lines of <i>Symmetry</i>
3	3
4	4
5	5
6	6
n	n

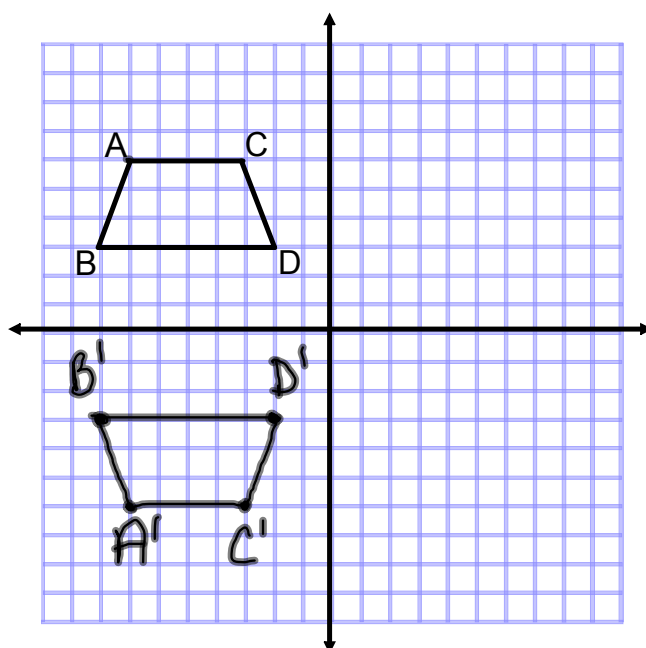
1

Make a general statement describing the relationship between the number of sides and the number of lines of symmetry that can be drawn in a polygon.

The number of lines of symmetry that can be drawn in a regular polygon is equal to the number of vertices.



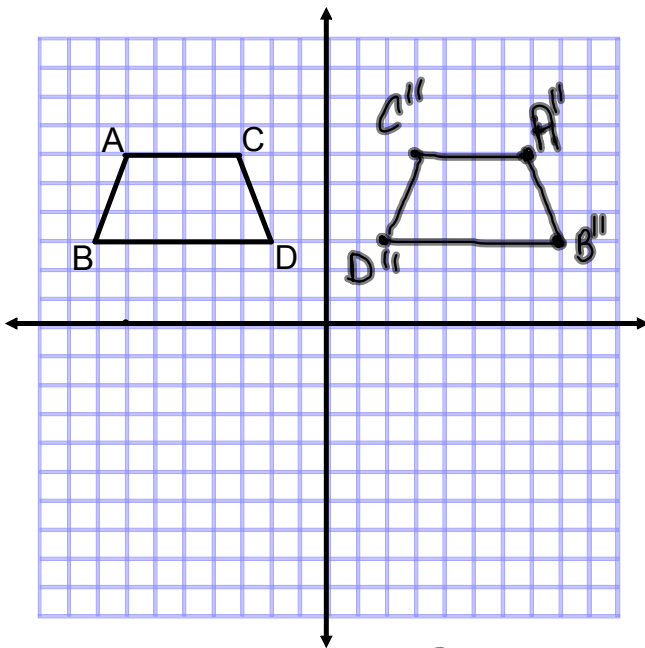
Reflecting on the Cartesian Plane



Reflect across the x-axis

Point	Image
$A(-7, 6)$	$A'(-7, -6)$
$B(-8, 3)$	$B'(-8, -3)$
$C(-3, 6)$	$C'(-3, -6)$
$D(-2, 3)$	$D'(-2, -3)$

Horizontal Reflection



Reflect across the y-axis.

Point	Image
$A(-7, 6)$	$A''(7, 6)$
$B(-8, 3)$	$B''(8, 3)$
$C(-3, 6)$	$C''(3, 6)$
$D(-2, 3)$	$D''(2, 3)$

Vertical Reflection

3,6,10
357-359

Resource Book Pages 295-296

Text Book Pages 357-359
#'s 3, 6, 10