

# 9-1 Study Guide

## Reflections

Geometry 1 ~ Q4HW7 Page 1 of 2

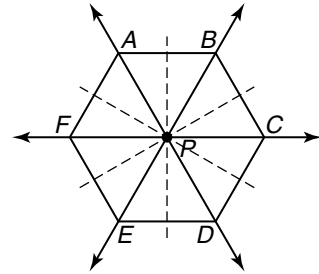
Work may be done on these pages. Note: major point loss if not neat AND legible.

**Lines and Points of Symmetry** If a figure has a **line of symmetry**, then it can be folded along that line so that the two halves match. If a figure has a **point of symmetry**, it is the midpoint of all segments between the preimage and image points.

### Example

**Determine how many lines of symmetry a regular hexagon has. Then determine whether a regular hexagon has point symmetry.**

There are six lines of symmetry, three that are diagonals through opposite vertices and three that are perpendicular bisectors of opposite sides. The hexagon has point symmetry because any line through  $P$  identifies two points on the hexagon that can be considered images of each other.



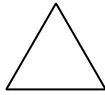
### Exercises

**Determine how many lines of symmetry each figure has. Then determine whether the figure has point symmetry.**

1.



2.



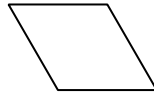
3.



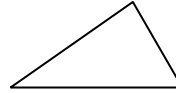
4.



5.



6.



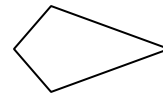
7.



8.



9.





# 9-1 Skills Practice

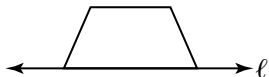
## Reflections

Geometry 1 Q4HW7

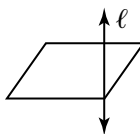
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Draw the image of each figure under a reflection in line  $\ell$ .

1.

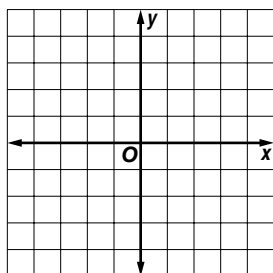


2.

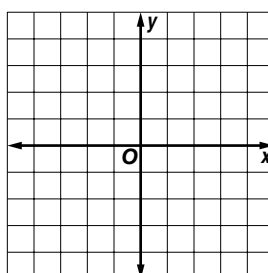


**COORDINATE GEOMETRY** Graph each figure and its image under the given reflection.

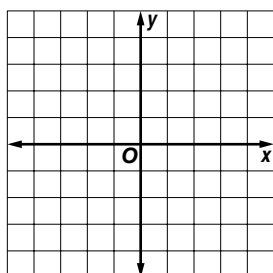
3.  $\triangle ABC$  with vertices  $A(-3, 2)$ ,  $B(0, 1)$ , and  $C(-2, -3)$  in the origin



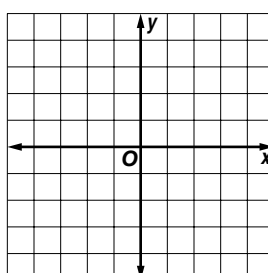
4. trapezoid  $DEFG$  with vertices  $D(0, -3)$ ,  $E(1, 3)$ ,  $F(3, 3)$ , and  $G(4, -3)$  in the y-axis



5. parallelogram  $RSTU$  with vertices  $R(-2, 3)$ ,  $S(2, 4)$ ,  $T(2, -3)$  and  $U(-2, -4)$  in the line  $y = x$

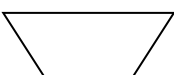


6. square  $KLMN$  with vertices  $K(-1, 0)$ ,  $L(-2, 3)$ ,  $M(1, 4)$ , and  $N(2, 1)$  in the x-axis



Determine how many lines of symmetry each figure has. Then determine whether the figure has point symmetry.

7.



8.



9.

