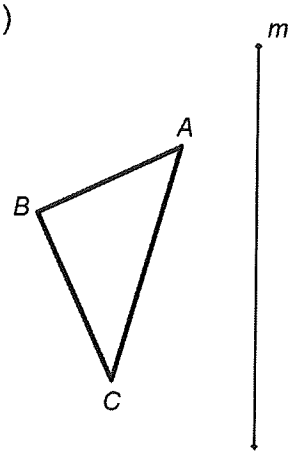
Geometry - 9.1 - Reflections

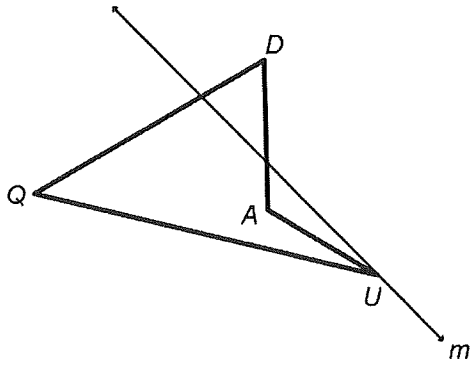
- A _____ is a transformation representing the _____ of a figure. Figures may be reflected in a _____, _____, or _____.
- An _____ is a transformation that preserves _____, _____ _____, _____ of points, and _____. The three types of isometries we will discuss in this chapter are _____, _____, and _____.

Ex 1 - Reflect the following figures in line *m*.

a)

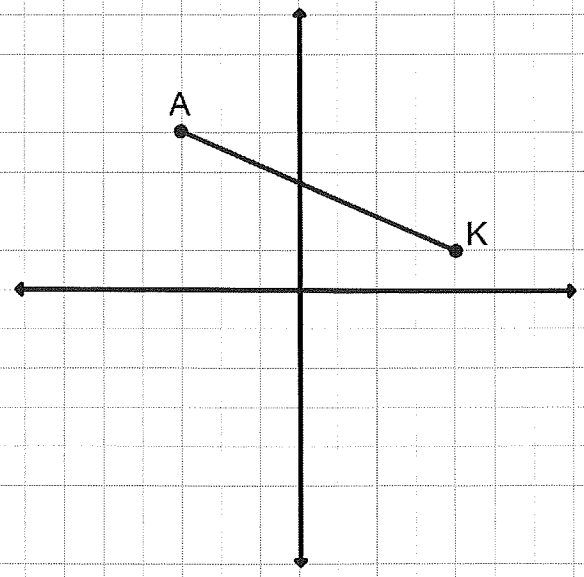


b)



Ex 2 - Reflect the following figures in specified manners:

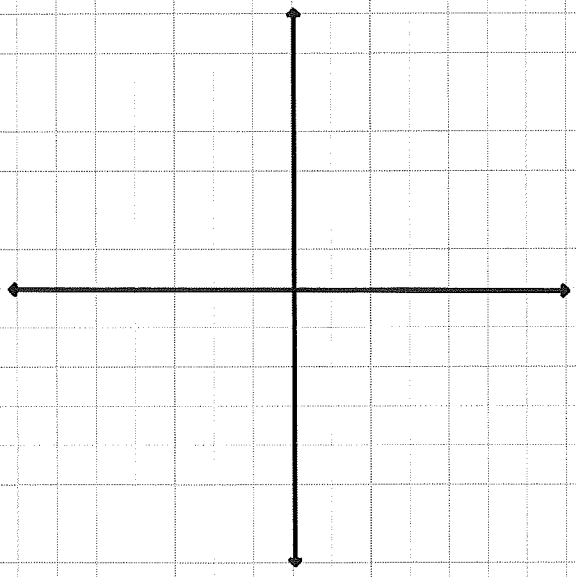
a) The given segment in the *x*-axis.



Rule for reflections in the *x*-axis:

$(a, b) \rightarrow$ _____

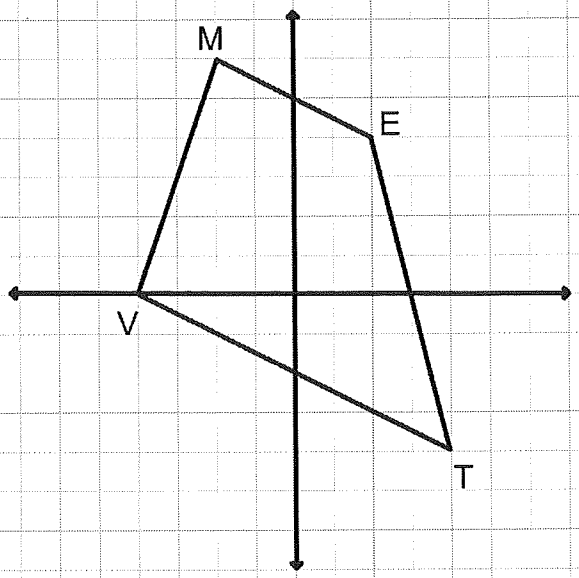
b) A triangle with coordinates *D*(1, 2), *E*(3, 4), and *F*(5, -6) in the *y*-axis.



Rule for reflections in the *y*-axis:

$(a, b) \rightarrow$ _____

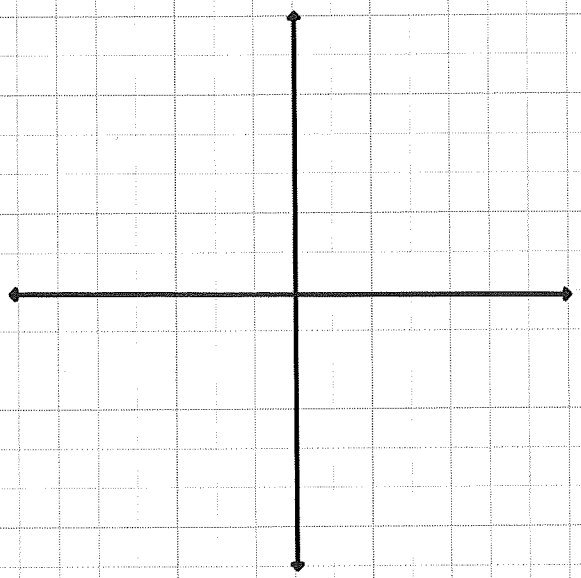
c) The given quadrilateral the origin.



Rule for reflections in the origin:

$(a, b) \rightarrow$ _____

d) A quadrilateral with coordinates $F(0, 0)$, $L(2, 6)$, $I(5, -4)$ and $P(1, -3)$ in the line $y = x$.

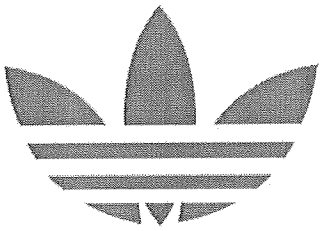


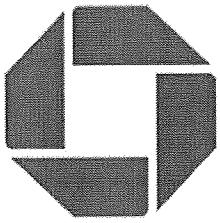
Rule for reflections in the line $y = x$:

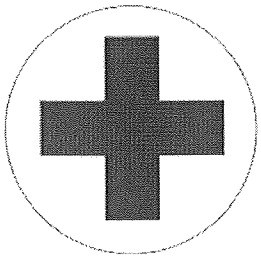
$(a, b) \rightarrow$ _____

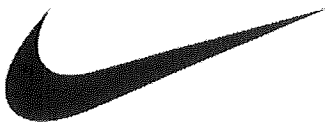
- A _____ of symmetry is a line that can be drawn through a figure so that the figure on one side is the reflection image of the figure on the opposite side.
- A _____ of symmetry is a common point of reflection for all points on a figure.

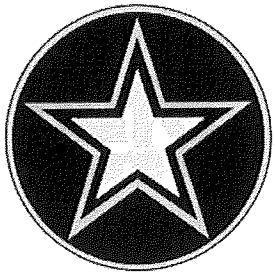
Ex 3 - Draw any lines of symmetry and points of symmetry (using a point P) on the logos below. (Ignore any shading or coloring in the logos.)









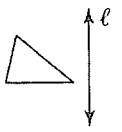


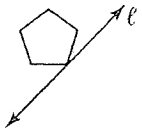
NAME _____ DATE _____ PERIOD _____

9-1 Practice

Reflections

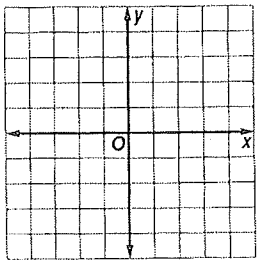
Draw the image of each figure under a reflection in line ℓ.

1. 

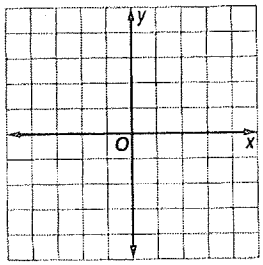
2. 

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

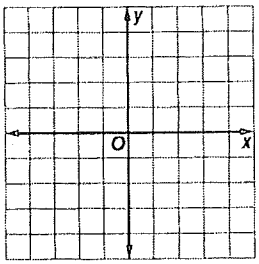
3. quadrilateral $ABCD$ with vertices $A(-3, 3)$, $B(1, 4)$, $C(4, 0)$, and $D(-3, -3)$ in the origin



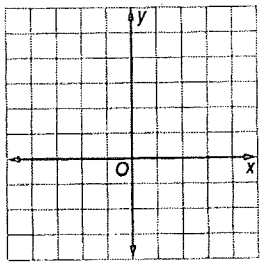
4. $\triangle FGH$ with vertices $F(-3, -1)$, $G(0, 4)$, and $H(3, -1)$ in the line $y = x$



5. rectangle $QRST$ with vertices $Q(-3, 2)$, $R(-1, 4)$, $S(2, 1)$, and $T(0, -1)$ in the x-axis



6. trapezoid $HIJK$ with vertices $H(-2, 5)$, $I(2, 5)$, $J(-4, -1)$, and $K(-4, 3)$ in the y-axis



ROAD SIGNS Determine how many lines of symmetry each sign has. Then determine whether the sign has point symmetry.

7. 

8. 

9. 

© Glencoe/McGraw-Hill