Assignment

Write

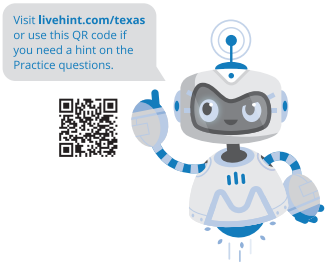
Explain each term or set of terms in your own words.

1. transformation
2. pre-image and image
3. translation
4. reflection and line of reflection
5. rotation, angle of rotation, and center of rotation

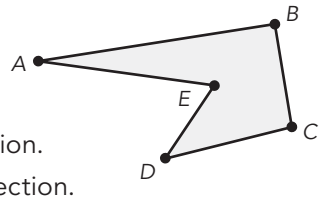
Remember

Rigid motions are transformations that preserve the size and shape of figures. Translations and rotations also preserve the orientation of a figure. The relative order of the vertices is the same in the pre-image and the image of a translation and of a rotation.

Practice



1. Complete each rigid motion transformation of the provided figure. In each case, be sure to label the vertices of the image and label your transformation to demonstrate at least one property of the transformation.
   a. Translate the figure in a horizontal direction.
   b. Translate the figure in a vertical direction.
   c. Translate the figure in a diagonal direction.
   d. Reflect the figure across a vertical line of reflection.
   e. Reflect the figure across a horizontal line of reflection.
   f. Reflect the figure across a diagonal line of reflection.
   g. Rotate the figure 90° clockwise. Be sure to label the center of rotation.
   h. Rotate the figure 90° counterclockwise. Be sure to label the center of rotation.
   i. Rotate the figure 180° Be sure to label the center of rotation.



2. Figure *B* is the image of Figure *A*.
   a. What is the relationship between the figures?
   b. Explain how Figure *A* was transformed to create Figure *B*.

Figure A

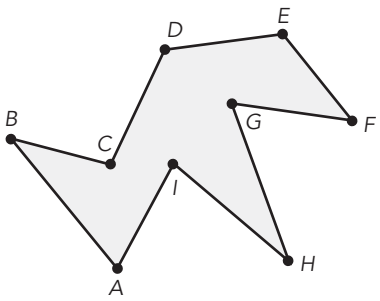
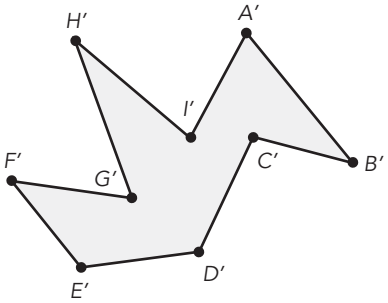


Figure B



Stretch

Assume that an image is created by rotating another figure 180°. Explain how you could determine the location of the center of rotation.

Review

1. Determine which figures are congruent to Figure *A*. Follow the steps given as you investigate each shape.
   - Make a conjecture about which figures are congruent to Figure *A*.
   - Justify your conjecture by stating how you can move from Figure *A* to each congruent figure by translating, reflecting, or rotating Figure *A*.

Figure *A*

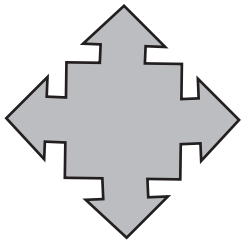


Figure *B*

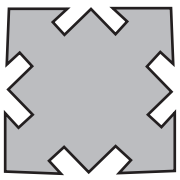
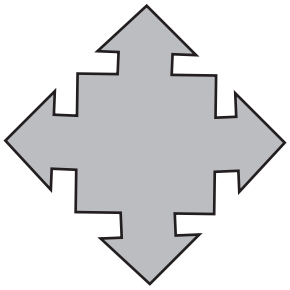


Figure *C*



2. Complete each sum or difference.
   a. $-3.25 + 4.5$
   b. $-15 - 3.5$
3. Plot each point on the coordinate plane. Connect the points and identify the shape.

   A(7, 0) *B*(−1, 0) *C*(−1, 4) *D*(4, 4)