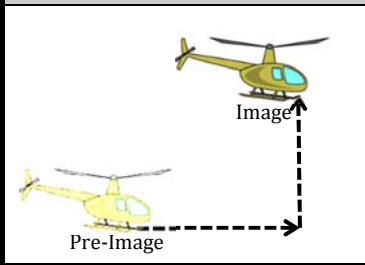
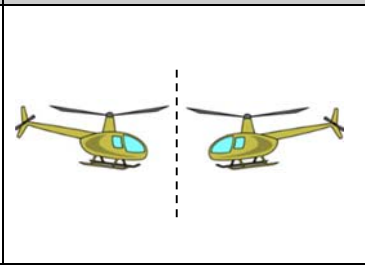
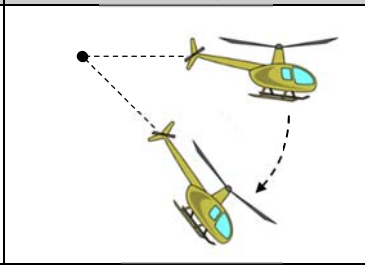
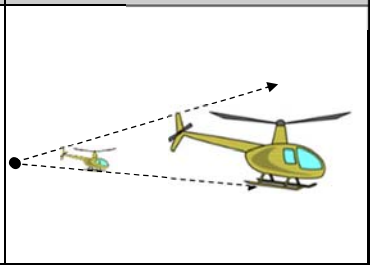
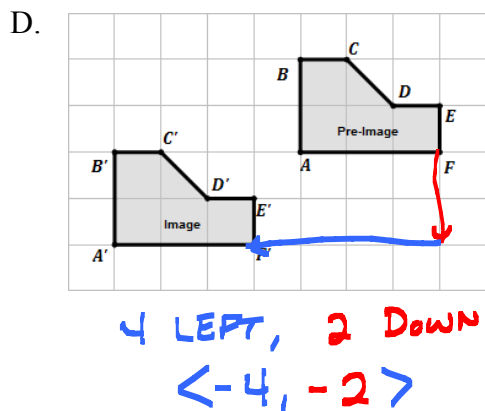
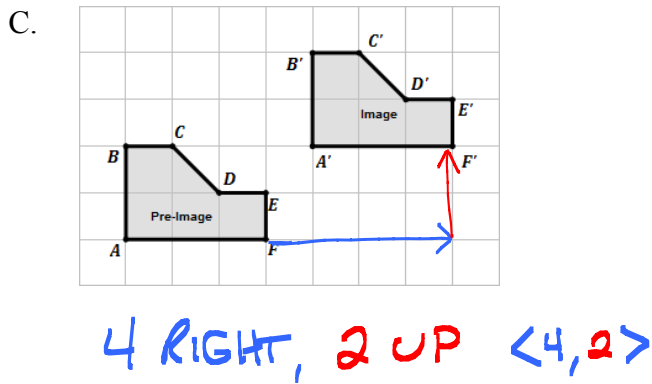
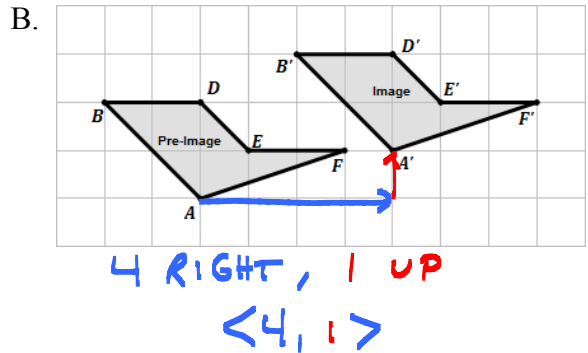
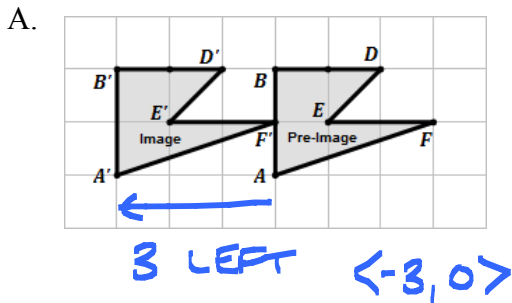


Transformation Types:

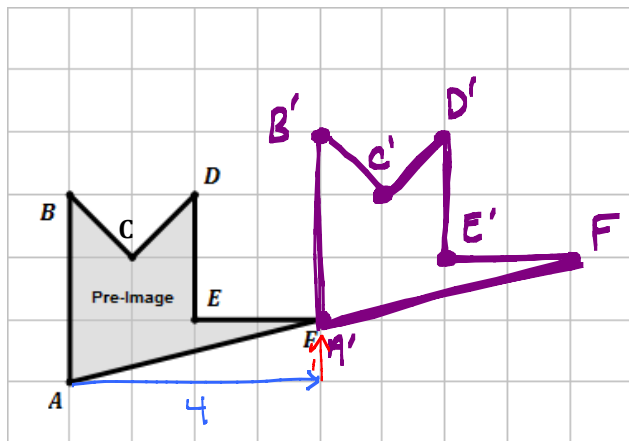
<p>Translation Translation</p>	<p>Reflection Reflection</p>	<p>Rotation Rotation</p>	<p>Dilation Dilation</p>
			

Translations

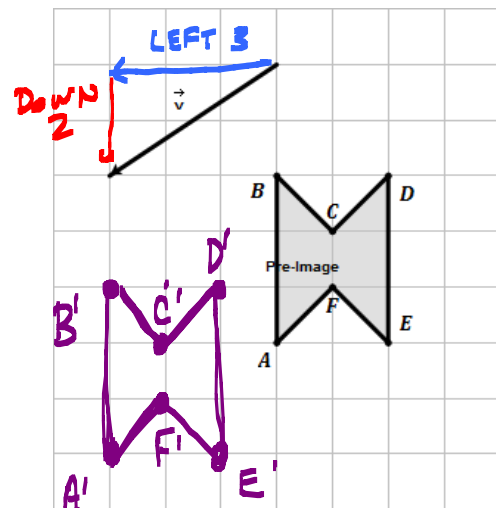
1. Describe the transformation in rectangular units from the Pre-Image to the Image for each of the following:



2. Translate the following object right 4 units and up 1 unit. Label each vertex appropriately.  $\langle 4, 1 \rangle$

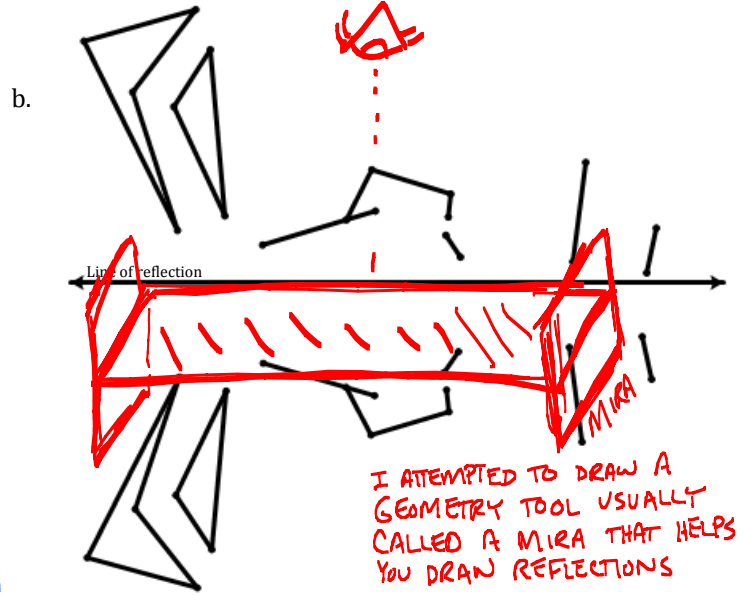
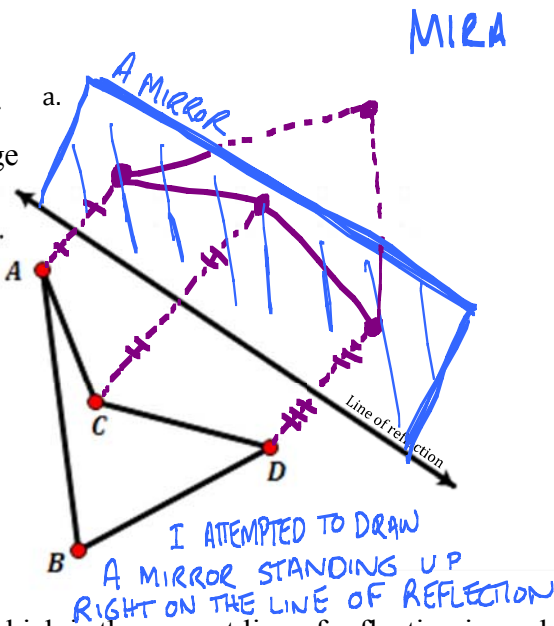


3. Translate the following object by the vector  $\vec{v}$ .

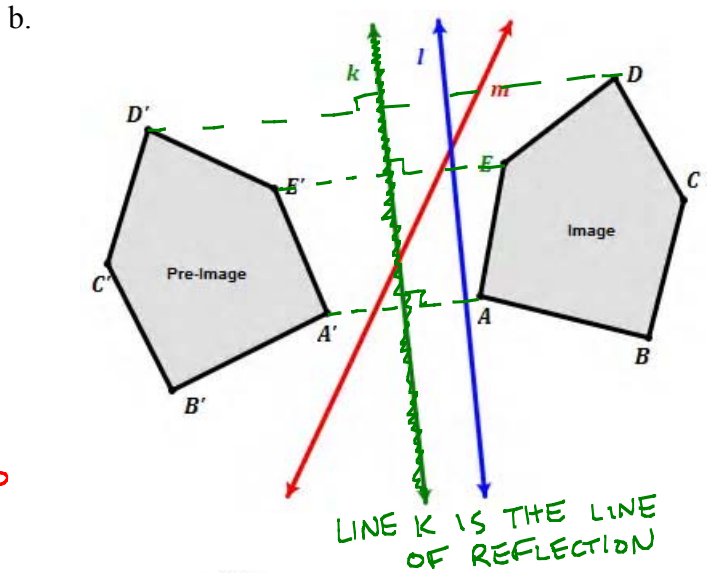
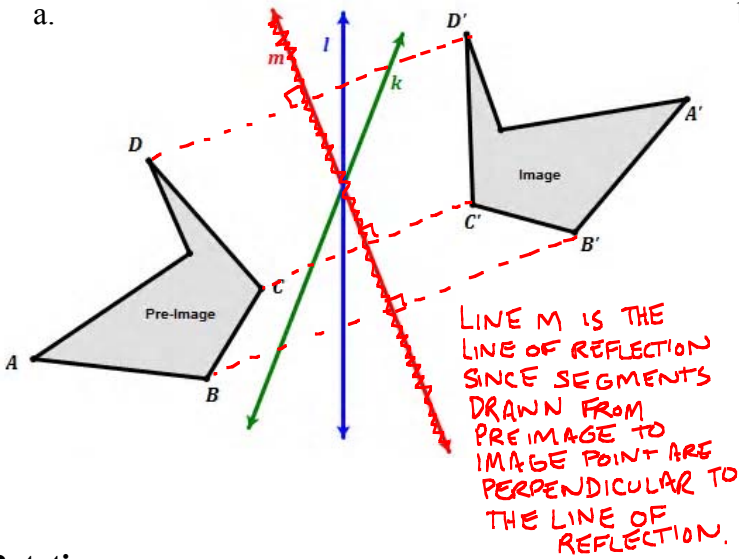


**Reflections**

4. Create a reflection of the Pre-image over the line of reflection.

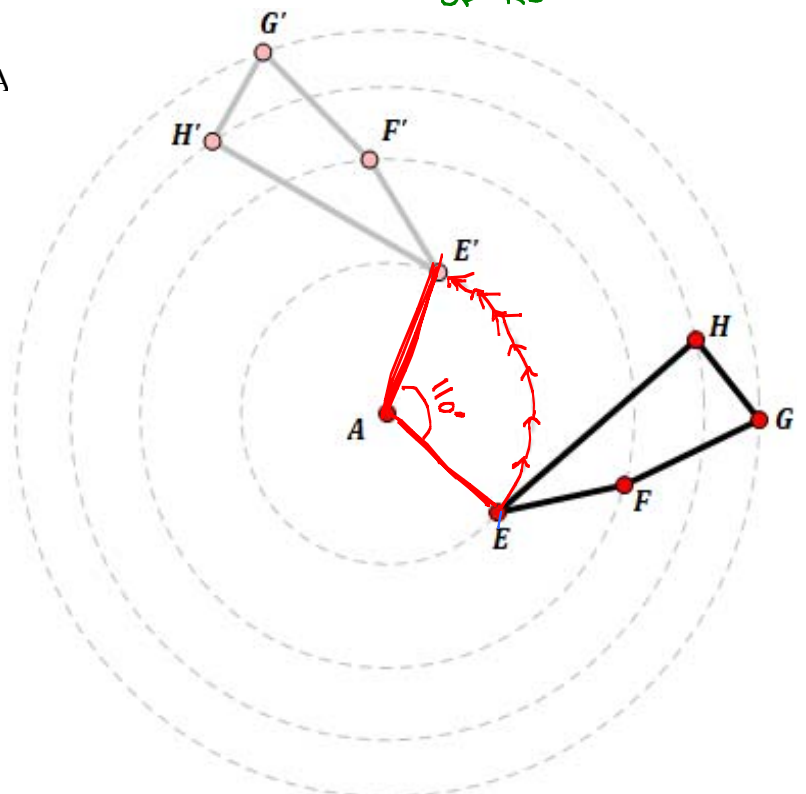


5. Determine which is the correct line of reflection in each diagram between the Image and Pre-Image?

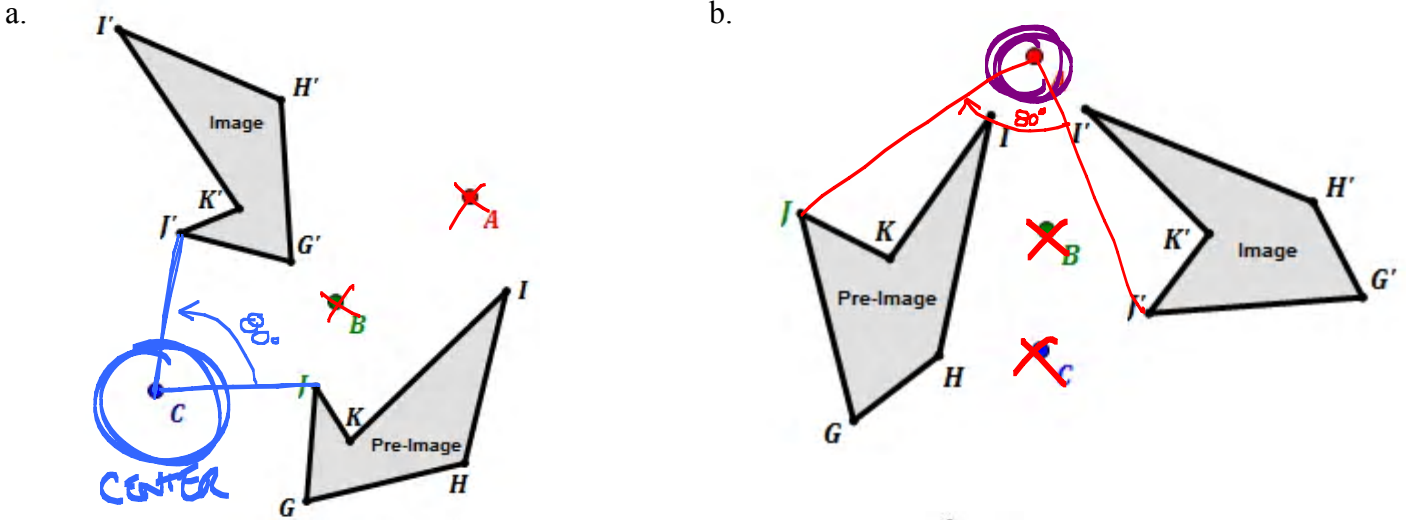


**Rotations**

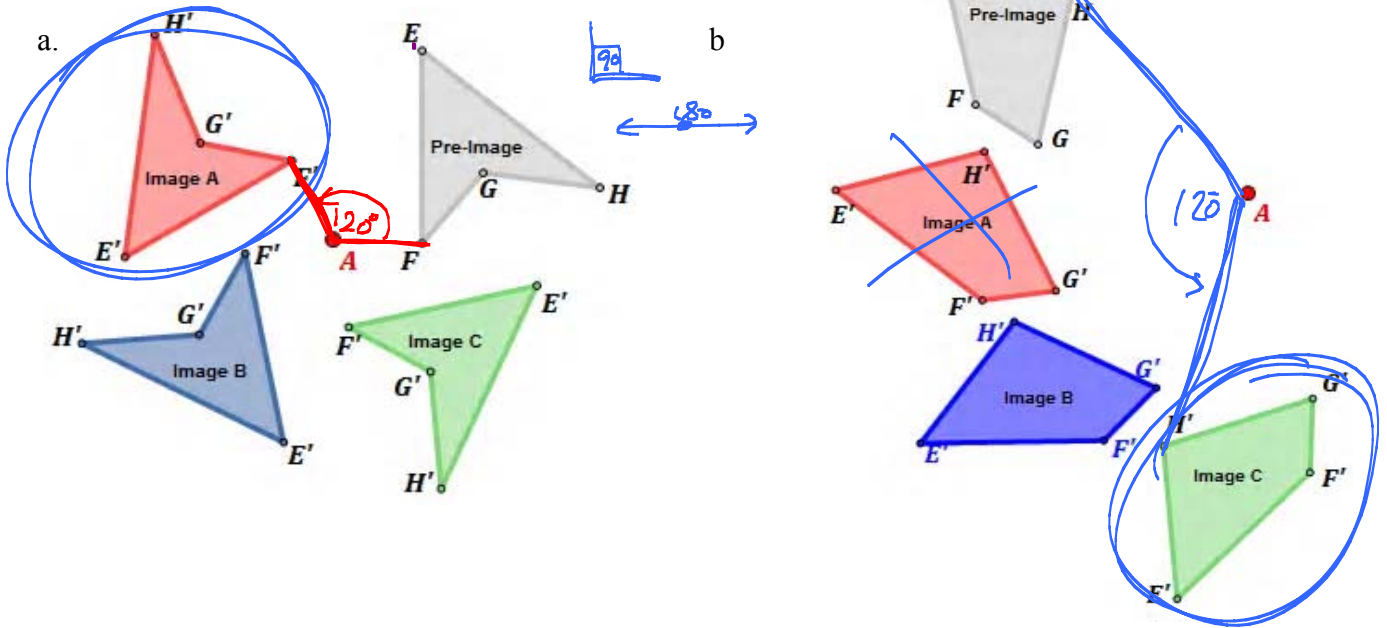
6. Rotate the following polygon 110° about the point A



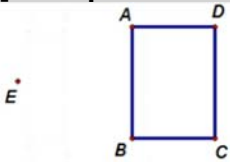
7. Determine which is the correct center if an  $80^\circ$  rotation was used?



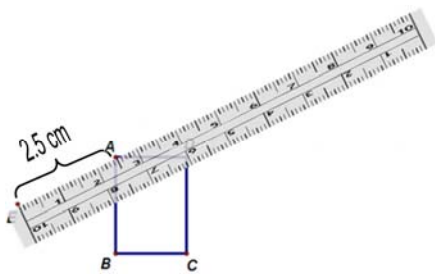
8. Which Image is a rotation of  $120^\circ$  about the point A?



**[Example Dilation]:** Dilate the  $\square ABCD$  by a factor of 2.0 from point E.

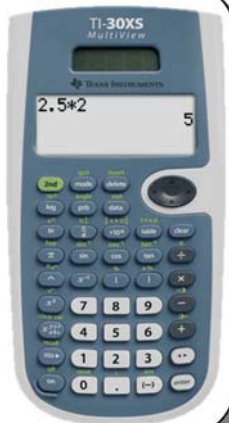


**Step 1:** Measure the distance from the point of dilation to a point to be dilated (preferably using centimeters).

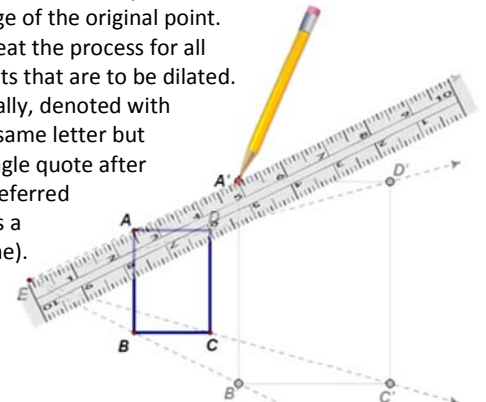


**Step 2:** Multiply the measured distance by the scale factor.

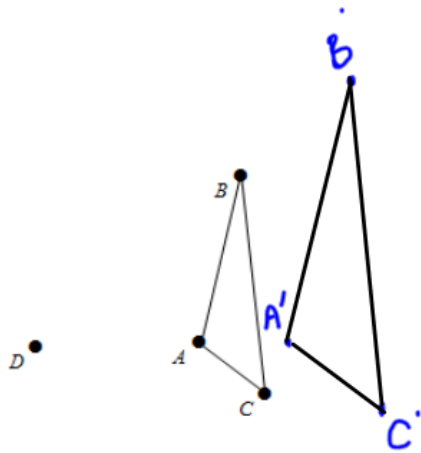
$$2.5 \text{ cm} \times 2.0 = 5 \text{ cm}$$



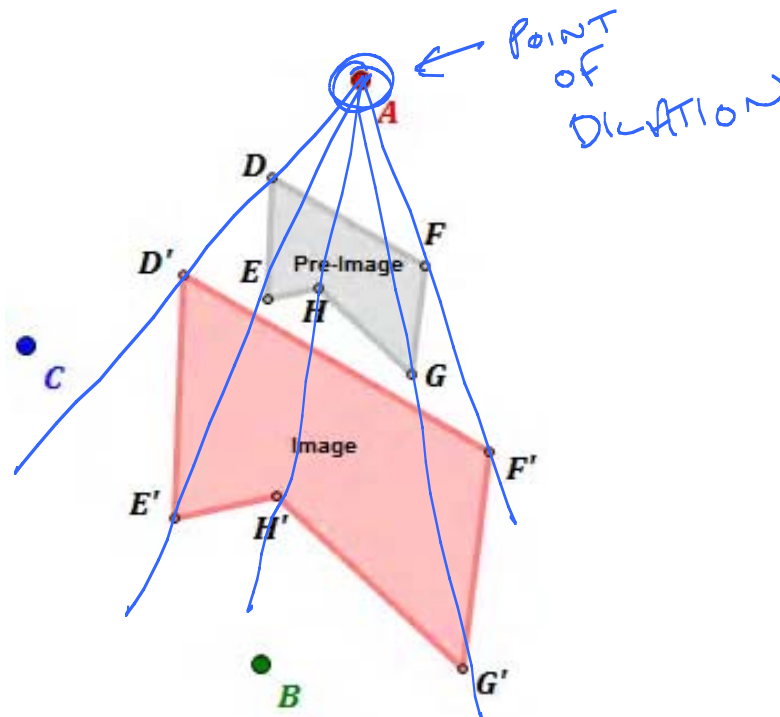
**Step 1:** With the ruler in the same place as it was in step #1, mark a point at the measured distance determined in step #2 as the image of the original point. Repeat the process for all points that are to be dilated. Usually, denoted with the same letter but a single quote after it (referred to as a prime).



9. Dilate the  $\triangle ABC$  by a factor of  $\frac{3}{2}$  from point D.



10. Which is the correct point of Dilation if the pre-image was dilated by a factor of 2?



11. Which of the four transformations are isometries?

AN ISOMETRY IS A TRANSFORMATION THAT PRESERVES THE PREIMAGE AND CREATES AN IMAGE THAT IS STILL CONGRUENT (i.e. "THE SAME AS") THE PRE-IMAGE.

- TRANSLATIONS ARE ISOMETRIES.
- REFLECTIONS ARE ISOMETRIES.
- ROTATIONS ARE ISOMETRIES.
- DILATIONS ARE NOT ISOMETRIES.