DG Unit 3 Review

Name Solutions
Date _____ Period ____

Identify each statement as true or false.

F 1. A glide reflection is a single reflection.

T 2. The composition of two reflections across parallel lines equivalent to a translation.

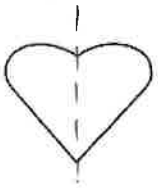
F 3. A translation of $\langle 5, 2\rangle$ followed by a translation of $\langle -8, 3\rangle$ is equivalent to a single translation of $\langle 13, -1, \rangle$

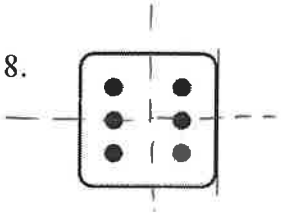
F 4. Two consecutive reflections across a pair of parallel lines 24 cm. apart is equivalent to a single translation of a length of 12 cm.

T 5. The composition of two reflections across two intersecting lines is equivalent to a single rotation.

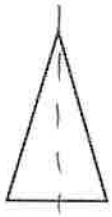
F 6. A rotation of 20° clockwise followed by a rotation of 130° counterclockwise followed by a rotation of 50° clockwise is equivalent to a single clockwise rotation of 60°.

Name the type of symmetry for each figure using: reflectional, rotational, point, or no symmetry. If a figure has more than one type of symmetry please list all. Include numbers for rotation and lines of symmetry.

7. 
Reflection

8. 
Reflection
Point symmetry

9. 
Reflection
Rotation 72°

10. 
Reflection

11. 
NO Symmetry

12. Consider ΔABC.

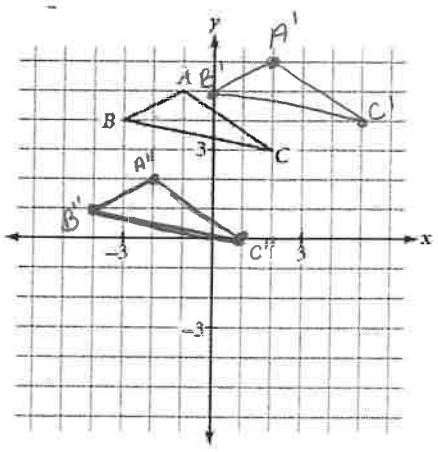
a. Translate ΔABC using the rule $T\langle -4, -4\rangle \circ T\langle 3, 1\rangle$ Label the first image $\Delta A'B'C'$, and the final image $\Delta A"B"C"$.

b. Give the transformation rule for the single transformation that is equivalent to the composition of these two translations.

$T_{\langle -1, -3\rangle}$

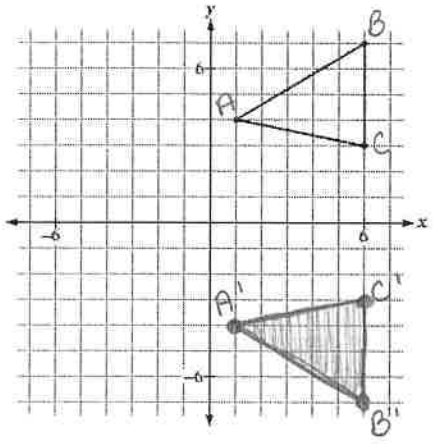
c. Give the ordered pair rule (or vector) for the single transformation that will bring back $\Delta A"B"C"$ to ΔABC.

$T_{\langle 1, 3\rangle}$

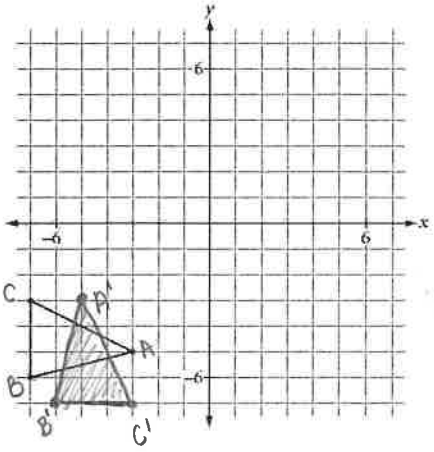


13. Transform each image according to the rule

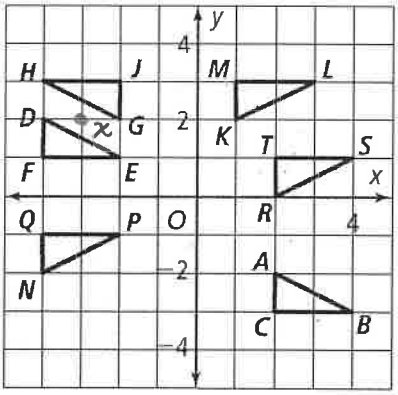
a. $(x, y) \rightarrow (x, -y)$



b. $(x, y) \rightarrow (y, x)$



14.) Describe the rigid motion that produces each image. Use the figure at the right.



a) $\triangle ABC \rightarrow \triangle DEF$ $T_{\langle -6, 4 \rangle}$

b) $\triangle ABC \rightarrow \triangle GHJ$ $T_{\langle -4, 0 \rangle} \circ R_{y\text{-axis}}$

c) $\triangle ABC \rightarrow \triangle KLM$ $T_{\langle -1, 0 \rangle} \circ R_{x\text{-axis}}$

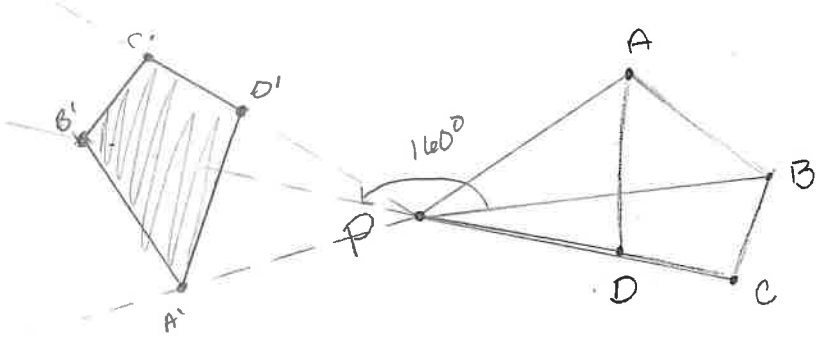
d) $\triangle ABC \rightarrow \triangle NPQ$ $T_{\langle -6, 0 \rangle} \circ R_{y=2}$

e) $\triangle ABC \rightarrow \triangle RST$ $R_{y=1}$

f) $\triangle DEF \rightarrow \triangle GHJ$ $r_{(180°, X)}$ $X = (-3, 2)$

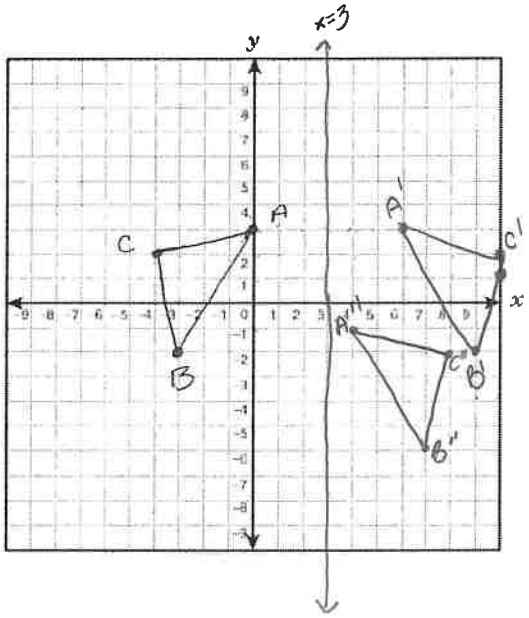
g) $\triangle GHJ \rightarrow \triangle KLM$ $R_{x=0.5}$

15.) Draw the rotated image $\mathbf{r}_{(160°, P)}$ (ABCD)



16.) For the following, graph each transformation. Then write the single transformation that could be used from the original to the final image.

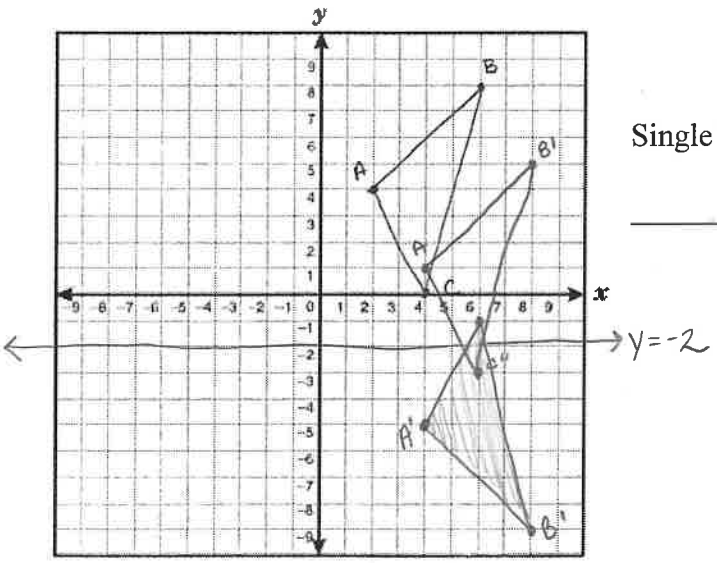
a.) $T_{\langle -2, 4 \rangle} \circ R_j$ where line j is x = 3



Single Transformation:

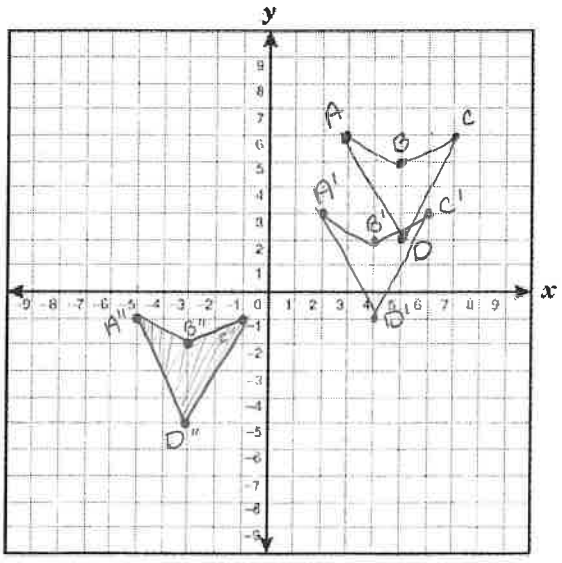
Rotation

b.) $R_k \circ T_{\langle 2, -3 \rangle}$ where line k is y = -2



Single Transformation:

c.) $T_{\langle -7, -4 \rangle} \circ T_{\langle -1, -3 \rangle}$



Single Transformation:

$T_{\langle -8, -7 \rangle}$