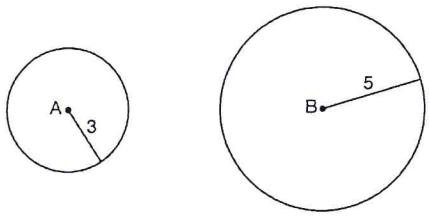
Name Schlansky
Mr. Schlansky

Dilate △___ by a scale factor of image/original centered at ___

Date _____
Geometry

Sequences of Similarity Transformations

1. As shown in the diagram below, circle A has a radius of 3 and circle B has a radius of 5.



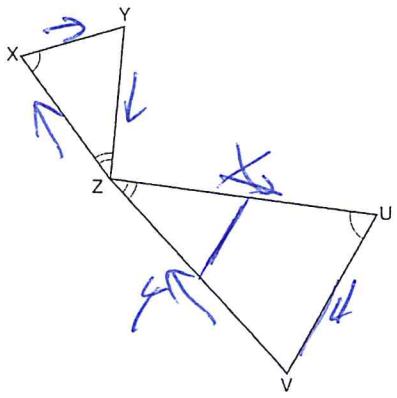
Use transformations to explain why circles A and B are similar. Are the circles congruent? Explain your answer.

1) Dilate ~~XXX~~ circle A by a scale factor of $\frac{5}{3}$ centered at A followed by translating A to B.

2) No, A dilation preserves angle measure but not size. A dilation and translation produce a similar figure.

2. In the diagram below, triangles XYZ and UVZ are drawn such that $\angle X \cong \angle U$ and $\angle XZY \cong \angle UZV$.

Same orientation rotation

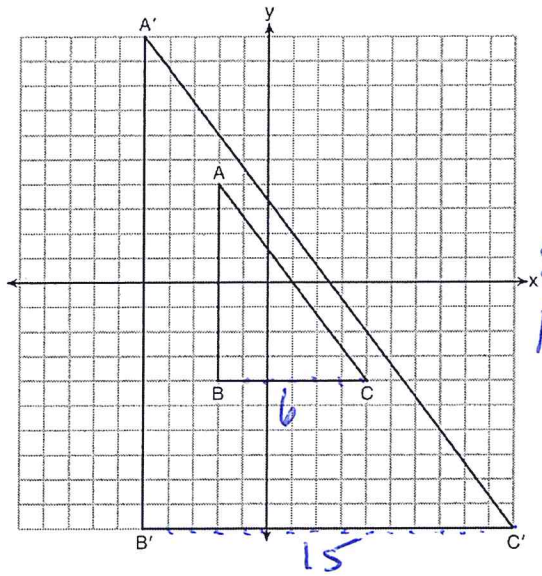


Describe a sequence of transformations that maps $\triangle XYZ$ onto $\triangle UVZ$. Are the triangles similar? Explain your answer.

1) Rotate △XYZ about Z until ~~XZ~~ YZ lands on top of ~~UZ~~ VZ followed by dilating △XYZ by a scale factor of $\frac{VZ}{YZ}$ centered at Z.

2) Yes, a rotation and dilation preserve angle measure producing a similar figure

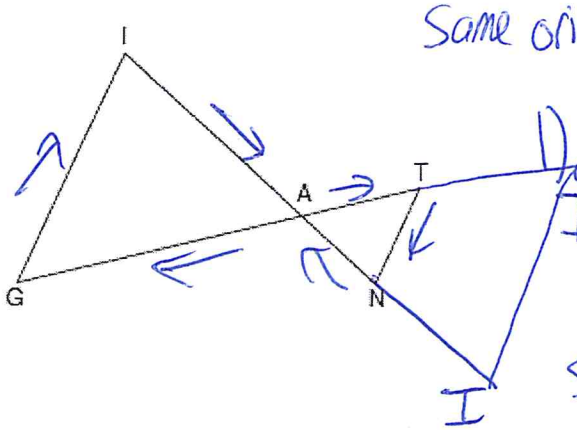
3. In the diagram below, $\triangle A'B'C'$ is the image of $\triangle ABC$ after a transformation.



1) Dilate $\triangle ABC$ by a scale factor of $\frac{15}{6}$ centered at the origin.
2) A dilation preserves angle measure producing a similar figure.

Describe the transformation that was performed. Explain why $\triangle A'B'C' \sim \triangle ABC$.

4. In the diagram below, $\overline{GI}$ is parallel to $\overline{NT}$, and $\overline{IN}$ intersects $\overline{GT}$ at A. Describe a sequence of transformations that maps ΔGIA onto ΔTNA. Are the triangle similar? Explain your answer. Are the triangles congruent? Explain your answer.



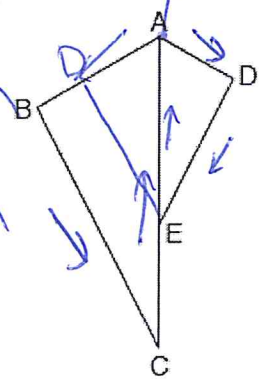
Same orientation: rotation

1) Rotate $\triangle GIA$ about A until $\overline{IA}$ lands on top of $\overline{NA}$ followed by dilating $\triangle GIA$ by a scale factor of $\frac{\overline{AN}}{\overline{AI}}$ centered at A.

2) Yes, they are similar. A rotation and dilation preserve angle measure producing a similar figure
No, they are not congruent. A dilation does not preserve size

5. Describe a sequence of transformation that would map $\triangle ADE$ onto $\triangle ABC$. What is the relationship between $\triangle ADE$ and $\triangle ABC$? Explain your answer.

the invariant point is the center of dilation.

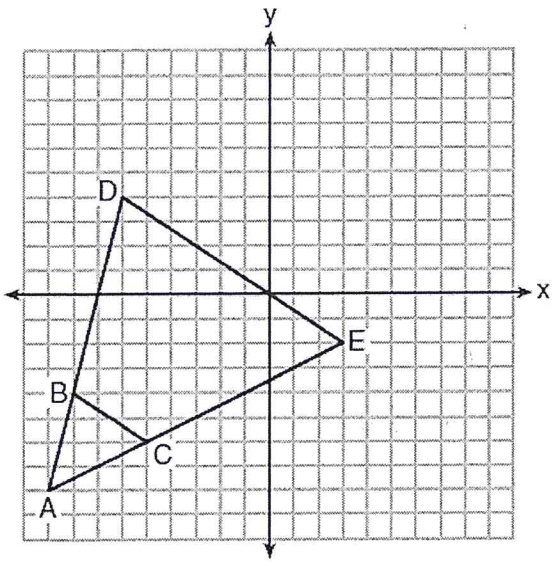


opposite orientation reflection

1) reflect $\triangle ADE$ over $\overline{AE}$ followed by dilating $\triangle ADE$ by a scale factor of $\frac{\overline{AB}}{\overline{AD}}$ centered at A.

2) $\triangle ADE \sim \triangle ABC$. A reflection and dilation preserve angle measure producing a similar figure.

6. Triangle *ABC* and triangle *ADE* are graphed on the set of axes below. Describe a transformation that maps triangle *ABC* onto triangle *ADE*. Explain why this transformation makes triangle *ADE* similar to triangle *ABC*.



1) Dilate $\triangle ABC$ by a scale factor of $\frac{\overline{AD}}{\overline{AB}}$ centered at A.

2) A dilation preserves angle measure producing a congruent figure.

7. Given: $\triangle AEC$, $\triangle DEF$, and $\overline{FE} \perp \overline{CE}$

What is a correct sequence of similarity transformations that shows $\triangle AEC \sim \triangle DEF$?

1) a rotation of 180 degrees about point *E* followed by a horizontal translation
2) a counterclockwise rotation of 90 degrees about point *E* followed by a horizontal translation
3) a rotation of 180 degrees about point *E* followed by a dilation with a scale factor of 2 centered at point *E*
4) a counterclockwise rotation of 90 degrees about point *E* followed by a dilation with a scale factor of 2 centered at point *E*