

NAME: \_\_\_\_\_

*P.I. G.G.58: Define, investigate, justify, and apply similarities (dilations)*

1. Describe two instances of dilation images in the real world.
2. The negative on a 35-mm roll of film is 1 in. by  $1\frac{1}{2}$  in. Common print sizes are 3 in. by 5 in. and 4 in. by 6 in. Is either size a dilation of the negative? Explain.
3. Describe a way to use lines to check that a dilation from  $\triangle ABC$  to  $\triangle A'B'C'$  is correct.
4. Make a conjecture about the coordinates of a point  $(x, y)$  under a dilation centered at  $(0, 0)$  with a scale factor of  $s > 0$ .
5. In  $\triangle ABC$ ,  $m\angle C > m\angle B$ . A dilation with center  $X$  outside of  $\triangle ABC$  and scale factor 2 maps  $ABC \rightarrow A'B'C'$ . What is true about the relationship between  $A'B'$  and  $A'C'$  under this dilation? Explain.

[1] Answers may vary. Samples: photo enlargement or microfilm

[2] Yes, the  $4 \times 6$ ; the scale factor is 4.

Draw lines through  $O(0, 0)$  and  $A$ ,  $B$ , and  $C$ . If the dilation is correct,  $\overleftrightarrow{OA}$  should contain  $A'$ ,  $\overleftrightarrow{OB}$

[3] should contain  $B'$ , and  $\overleftrightarrow{OC}$  should contain  $C'$ .

[4] The coordinates of the point will be  $(sx, sy)$ .

[5]  $A'B' > A'C'$  because  $m\angle C$  is still greater than  $m\angle B$  under the dilation.