Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Lesson Summary

Similarity is a symmetric relation. That means that if one figure is similar to another, $S\~S'$, then we can be sure that $S'\~S$.

Similarity is a transitive relation. That means that if we are given two similar figures, $S\~T$, and another statement about $T\~U$, then we also know that $S\~U$.

Problem Set

1. In the diagram below, $△ABC∼△A^{'}B^{'}C^{'}$ and $△A^{'}B^{'}C^{'}\~△A''B''C''$. Is $△ABC\~△A''B''C''$? If so, describe the dilation followed by the congruence that demonstrates the similarity.



1. Would a dilation alone be enough to show that similarity is symmetric? That is, would a dilation alone prove that if $△ABC∼△A'B'C'$, then $△A^{'}B^{'}C^{'}∼△ABC$? Consider the two examples below.
	1. Given $△ABC∼△A^{'}B^{'}C^{'}$Can you show that $△A^{'}B^{'}C^{'}∼△ABC$ using **only** a dilation? Explain.



* 1. Given $△ABC∼△A^{'}B^{'}C^{'}.$ Can you show that $△A^{'}B^{'}C^{'}∼△ABC$ using **only** a dilation? Explain.



* 1. In general, is dilation enough to prove that similarity is a symmetric relation? Explain.
1. Would a dilation alone be enough to show that similarity is transitive? That is, would a dilation alone prove that if
$△ABC∼△A'B'C'$, and $△A^{'}B^{'}C^{'}∼△A''B''C''$, then $△ABC∼△A''B''C''$? Consider the two examples below.
	1. Given $△ABC∼△A^{'}B^{'}C^{'} $and $△A^{'}B^{'}C^{'}∼△A''B''C''$. Is a dilation enough to show that $△ABC∼△A''B''C''$? Explain.



* 1. Given $△ABC∼△A^{'}B^{'}C^{'} $and $△A^{'}B^{'}C^{'}∼△A''B''C''$. Is a dilation enough to show that $△ABC∼△A''B''C''$? Explain.



* 1. In general, is dilation enough to prove that similarity is a transitive relation? Explain.