Lesson Summary

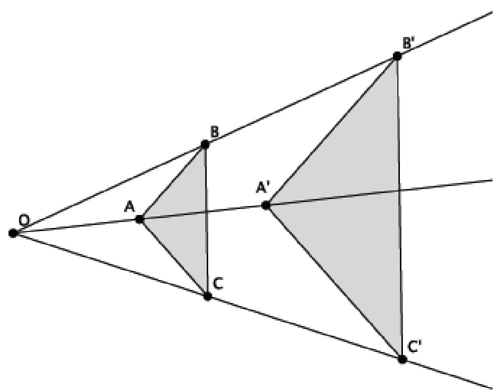
Similarity is a symmetric relation. That means that if one figure is similar to another, $S \sim S'$, then we can be sure that $S' \sim S$.

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

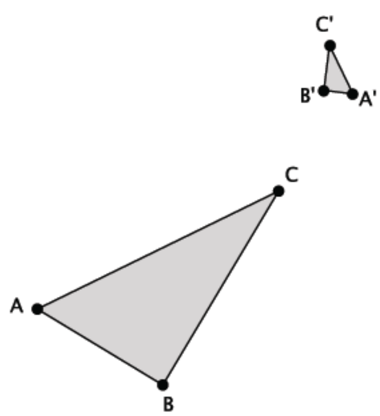
Problem Set

1. Would a dilation alone be enough to show that similarity is symmetric? That is, would a dilation alone prove that if $\triangle ABC \sim \triangle A'B'C'$, then $\triangle A'B'C' \sim \triangle ABC$? Consider the two examples below.

   a. Given $\triangle ABC \sim \triangle A'B'C'$, is a dilation enough to show that $\triangle A'B'C' \sim \triangle ABC$? Explain.



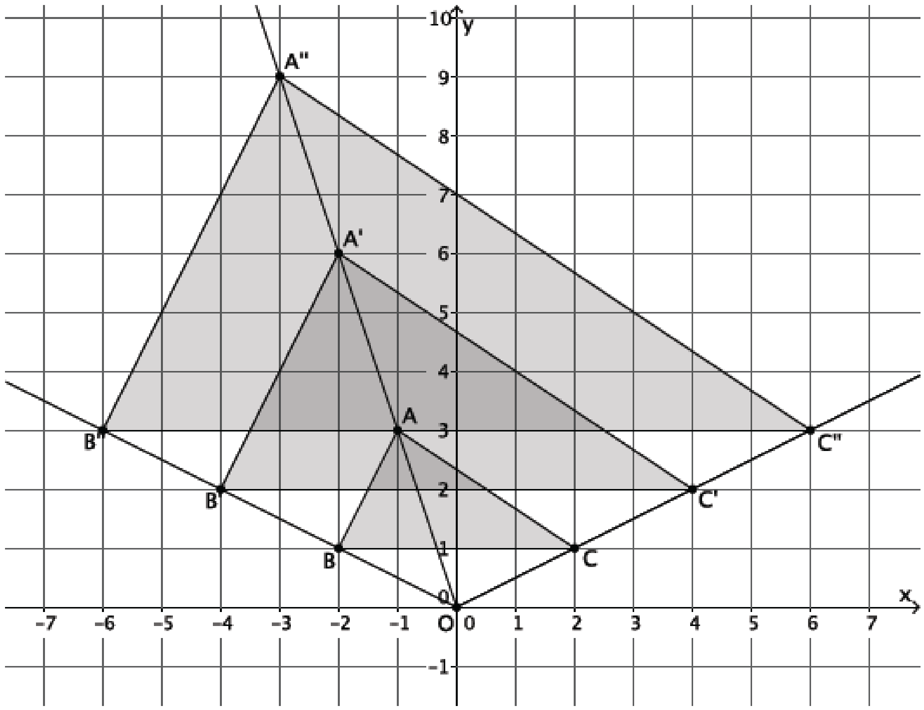
   b. Given $\triangle ABC \sim \triangle A'B'C'$, is a dilation enough to show that $\triangle A'B'C' \sim \triangle ABC$? Explain.



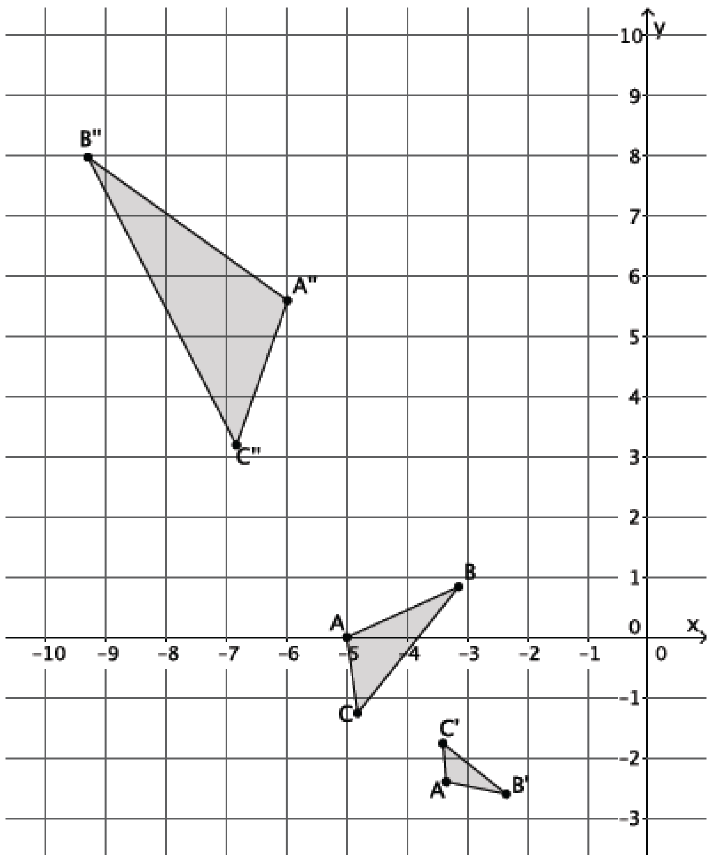
   c. In general, is dilation enough to prove that similarity is a symmetric relation? Explain.

2. Would a dilation alone be enough to show that similarity is transitive? That is, would a dilation alone prove that if $\triangle ABC \sim \triangle A'B'C'$ and $\triangle A'B'C' \sim \triangle A''B''C''$, then $\triangle ABC \sim \triangle A''B''C''$? Consider the two examples below.

   a. Given $\triangle ABC \sim \triangle A'B'C'$ and $\triangle A'B'C' \sim \triangle A''B''C''$, is a dilation enough to show that $\triangle ABC \sim \triangle A''B''C''$? Explain.



b. Given $\triangle ABC \sim \triangle A'B'C'$ and $\triangle A'B'C' \sim \triangle A''B''C''$, is a dilation enough to show that $\triangle ABC \sim \triangle A''B''C''$? Explain.



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

3. In the diagram below, $\triangle ABC \sim \triangle A'B'C'$ and $\triangle A'B'C' \sim \triangle A''B''C''$. Is $\triangle ABC \sim \triangle A''B''C''$? If so, describe the dilation followed by the congruence that demonstrates the similarity.