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Theorem 48. (AA for similar triangles). If corresponding angles of two triangles are equal then they are similar and their corresponding sides are proportional.

Proof: We denote triangles as $\triangle ABC$ and $\triangle A'B'C'$. We assume that $\frac{|A'B'|}{|AB|}=k$. Consider a central dilation $D_{O,k}$ with the factor k. We denote the image of the $\triangle ABC$ under this dilation as $\triangle A''B''C''$.

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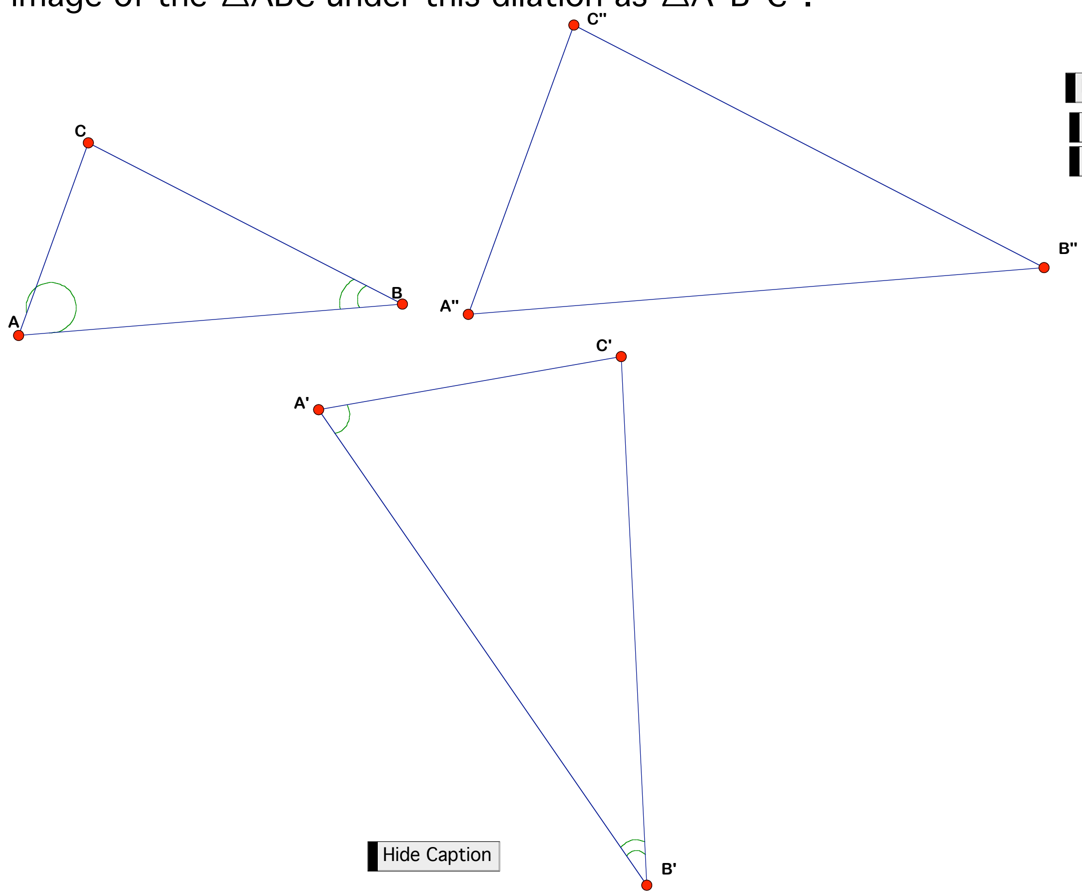

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1. $\triangle ABC \sim \triangle A''B''C''$, factor is k.	1. $\triangle A''B''C''$ is the image of $\triangle ABC$ under a dilation with factor k.
2. $\frac{\lvert A''B''\rvert}{\lvert AB\rvert}=k$.	2. Follows from 1..
3. $\frac{\lvert A'B'\rvert}{\lvert AB\rvert}=k$	3. Given.
4. $\lvert A''B''\rvert=\lvert A'B'\rvert$.	4. From 2. and 3..
5. $\angle A=\angle A', \angle B=\angle B'$.	5. Given.
6. $\angle A=\angle A'', \angle B=\angle B''$.	6. Follows from 1..
7. $\angle A'=\angle A'', \angle B'=\angle B''$.	7. From 6. and 7.
8. $\triangle A''B''C'' \cong \triangle A'B'C'$.	8. ASA, using 4. and 7.
9. $\triangle ABC \sim \triangle A'B'C'$.	9. From 1. and 8..