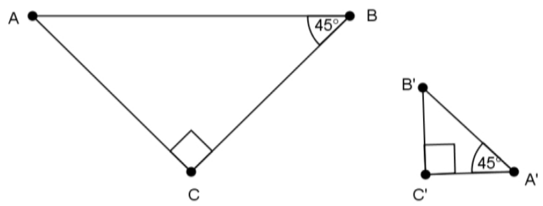
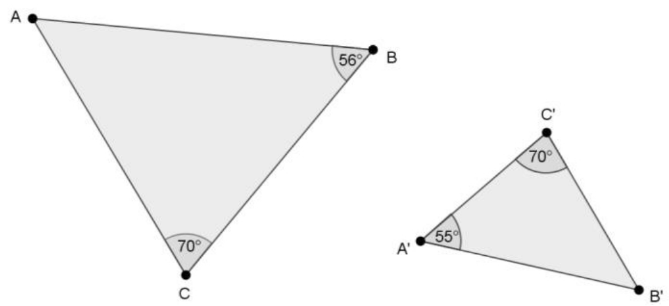
Name ____ Date___________________

Informal Proof of AA Criterion for Similarity

1. Are the triangles shown below similar? Present an informal argument as to why they are or are not similar.



2. Are the triangles shown below similar? Present an informal argument as to why they are or are not similar.



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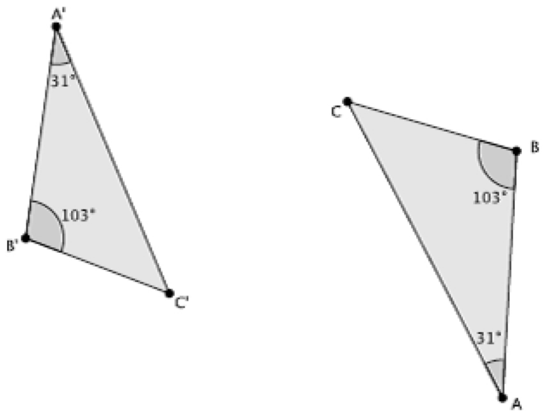

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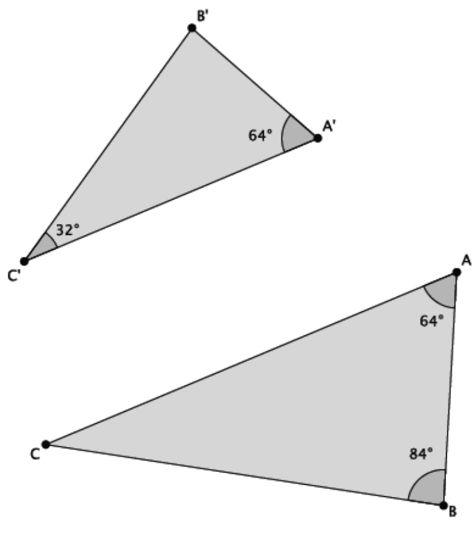
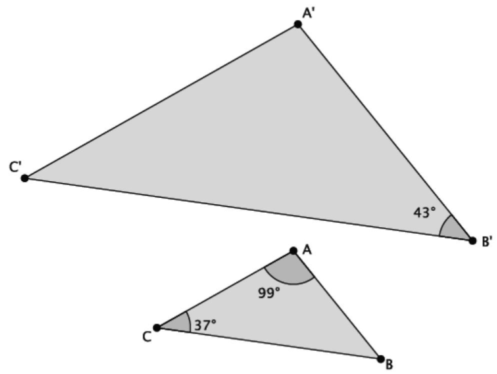
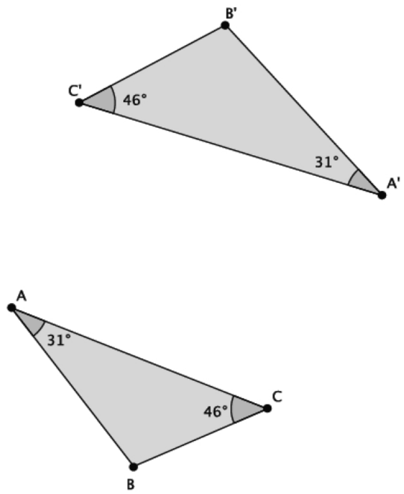


3. Are the triangles shown below similar? Present an informal argument as to why they are or are not similar.



4. Are the triangles shown below similar? Present an informal argument as to why they are or are not similar.



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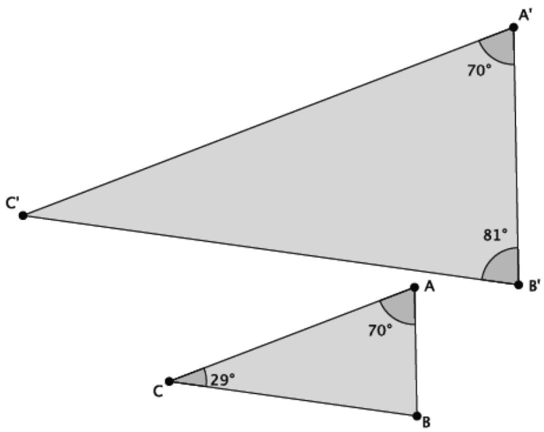
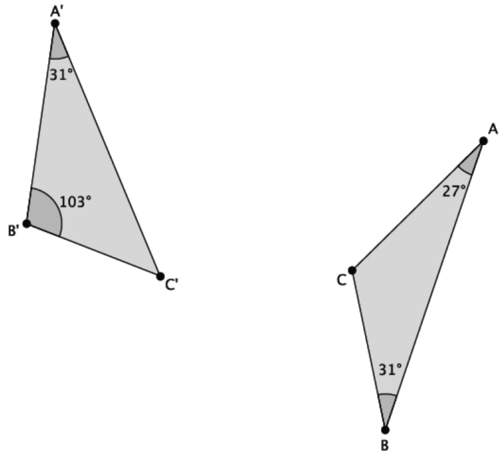
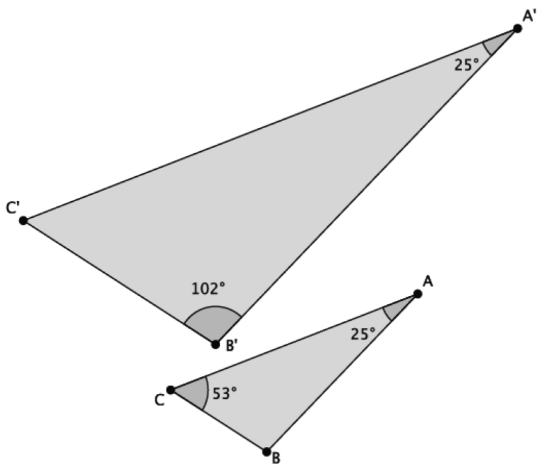


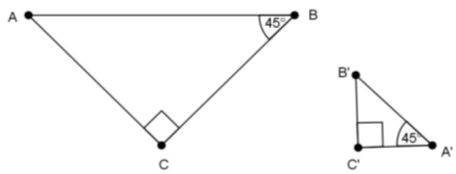
6. Are the triangles shown below similar? Present an informal argument as to why they are or are not similar.



7. Are the triangles shown below similar? Present an informal argument as to why they are or are not similar.

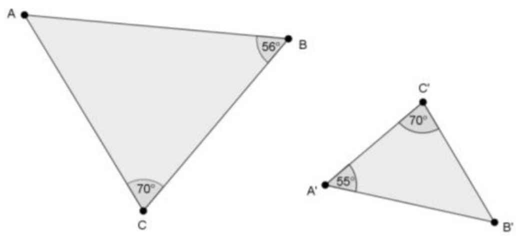


1. **Are the triangles shown below similar? Present an informal argument as to why they are or are not similar.**



Yes, $\triangle ABC \sim \triangle A'B'C'$***. They are similar because they have two pairs of corresponding angles that are equal. You have to use the triangle sum theorem to find out that*** $|\angle B'| = 45^\circ$ ***or*** $|\angle A| = 45^\circ$***. Then you can see that*** $|\angle A| = |\angle A'| = 45^\circ$***,*** $|\angle B| = |\angle B'| = 45^\circ$***, and*** $|\angle C| = |\angle C'| = 90^\circ$***.***

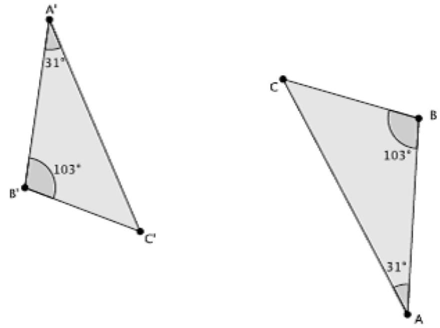
2. **Are the triangles shown below similar? Present an informal argument as to why they are or are not similar.**



No, $\triangle ABC$ ***is not similar to*** $\triangle A'B'C'$***. They are not similar because they do not have two pairs of corresponding angles that are equal. Namely,*** $|\angle A| \neq |\angle A'|$***, and*** $|\angle B| \neq |\angle B'|$***.***

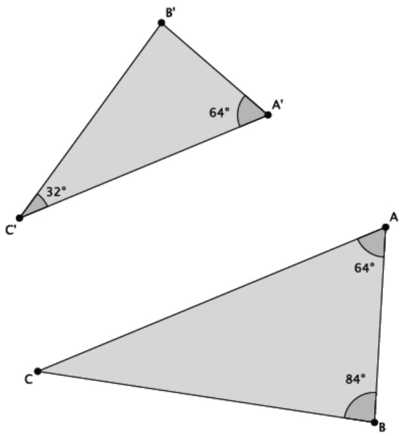
Students practice presenting informal arguments to prove whether or not two triangles are similar.

1. **Are the triangles shown below similar? Present an informal argument as to why they are or are not similar.**



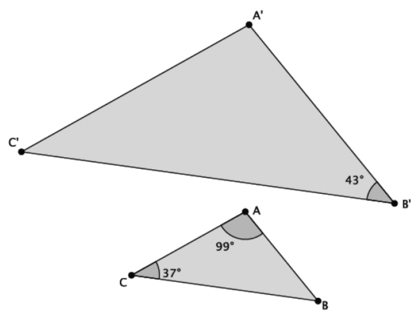
Yes, $\triangle ABC \sim \triangle A'B'C'$***. They are similar because they have two pairs of corresponding angles that are equal. Namely,*** $|\angle B| = |\angle B'| = 103^\circ$***, and*** $|\angle A| = |\angle A'| = 31^\circ$***.***

2. **Are the triangles shown below similar? Present an informal argument as to why they are or are not similar.**



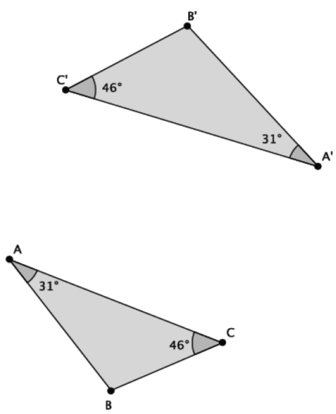
Yes, $\triangle ABC \sim \triangle A'B'C'$. They are similar because they have two pairs of corresponding angles that are equal. You have to use the triangle sum theorem to find out that $|\angle B'| = 84°$ or $|\angle C| = 32°$. Then you can see that $|\angle A| = |\angle A'| = 64°$, $|\angle B| = |\angle B'| = 84°$, and $|\angle C| = |\angle C'| = 32°$.

3. **Are the triangles shown below similar? Present an informal argument as to why they are or are not similar.**



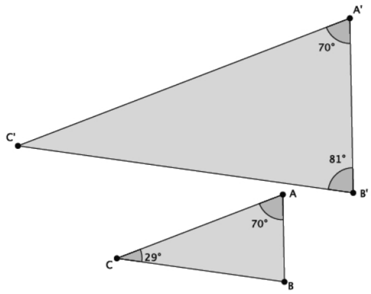
We do not know if $\triangle ABC$ is similar to $\triangle A'B'C'$. We can use the triangle sum theorem to find out that $|\angle B| = 44°$, but we do not have any information about $|\angle A'|$ or $|\angle C'|$. To be considered similar, the two triangles must have two pairs of corresponding angles that are equal. In this problem, we only know of one pair of corresponding angles and that pair does not have equal measure.

4. **Are the triangles shown below similar? Present an informal argument as to why they are or are not similar.**



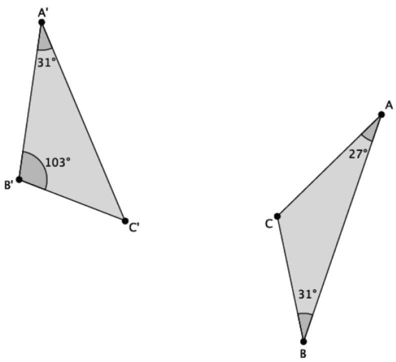
Yes, $\triangle ABC \sim \triangle A'B'C'$. They are similar because they have two pairs of corresponding angles that are equal. Namely, $|\angle C| = |\angle C'| = 46°$, and $|\angle A| = |\angle A'| = 31°$.

5. Are the triangles shown below similar? Present an informal argument as to why they are or are not similar.



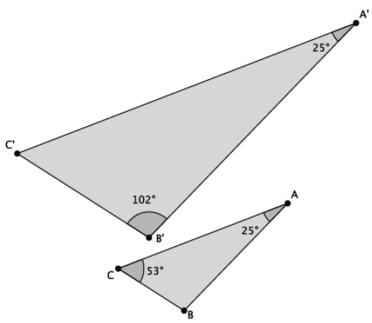
Yes, $\triangle ABC \sim \triangle A'B'C'$. They are similar because they have two pairs of corresponding angles that are equal. You have to use the triangle sum theorem to find out that $|\angle B| = 81°$ or $|\angle C'| = 29°$. Then you can see that $|\angle A| = |\angle A'| = 70°$, $|\angle B| = |\angle B'| = 81°$, and $|\angle C| = |\angle C'| = 29°$.

6. Are the triangles shown below similar? Present an informal argument as to why they are or are not similar.



No, $\triangle ABC$ is not similar to $\triangle A'B'C'$. By the given information, $|\angle B| \neq |\angle B'|$, and $|\angle A| \neq |\angle A'|$.

7. Are the triangles shown below similar? Present an informal argument as to why they are or why they are not.



Yes, $\triangle ABC \sim \triangle A'B'C'$. They are similar because they have two pairs of corresponding angles that are equal. You have to use the triangle sum theorem to find out that $|\angle B| = 102°$ or $|\angle C'| = 53°$. Then you can see that $|\angle A| = |\angle A'| = 25°$, $|\angle B| = |\angle B'| = 102°$, and $|\angle C| = |\angle C'| = 53°$.