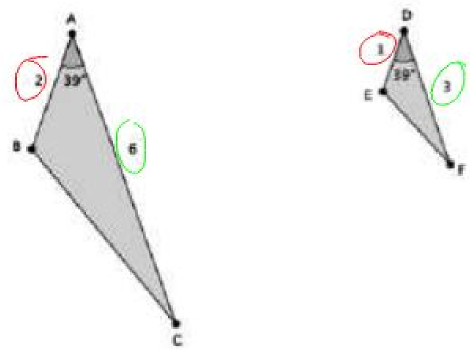
Lesson Summary

Given just one pair of corresponding angles of a triangle as equal, use the side lengths along the given angle to determine if triangles are in fact similar.



$|\angle A| = |\angle D|$ and $\frac{1}{2} = \frac{3}{6} = r$; therefore, $\triangle ABC \sim \triangle DEF$.

Given similar triangles, use the fact that ratios of corresponding sides are equal to find any missing measurements.

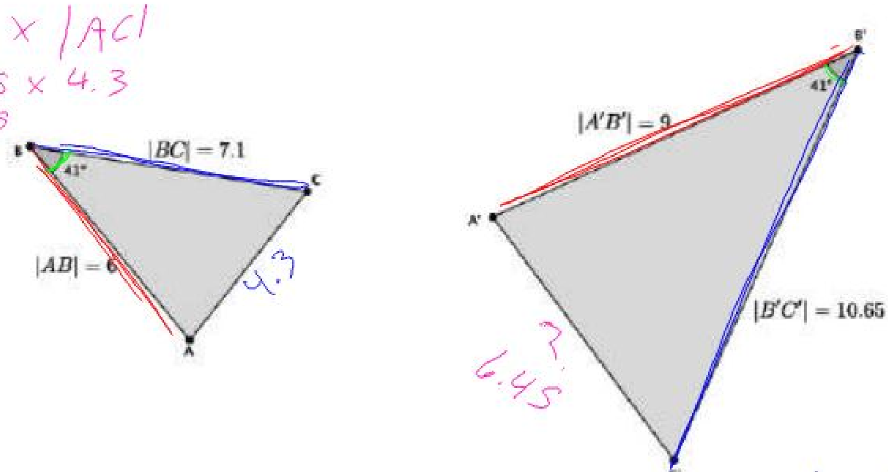
Problem Set

1. In the diagram below, you have $\triangle ABC$ and $\triangle A'B'C'$. Use this information to answer parts (a)–(b).

$|A'C'| = r \times |AC|$
$= 1.5 \times 4.3$
$= 6.45$

$r = \frac{N}{O} = \frac{9}{6} = \frac{3}{2} = 1.5$

$r = \frac{|B'C'|}{|BC|} = \frac{10.65}{7.1} = 1.5$



$|\angle B| = |\angle B'|$, and $\frac{9}{6} = \frac{10.65}{7.1} = 1.5 = r$, Therefore $\triangle ABC \sim \triangle A'B'C'$

a. Based on the information given, is $\triangle ABC \sim \triangle A'B'C'$? Explain.

b. Assume the length of side AC is 4.3. What is the length of side $A'C'$?

$|A'C'| = 6.45$

2. In the diagram below, you have $\triangle ABC$ and $\triangle AB'C'$. Use this information to answer parts (a)–(d).

$r = \frac{N}{O} = \frac{|C'B'|}{|CB|} = \frac{1.6}{11.2} = \frac{1}{7}$

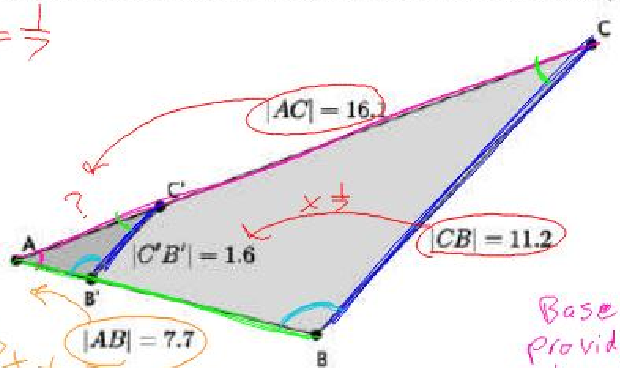
$r = \frac{N}{O} = \frac{?}{16.1}$

$r = \frac{|AC'|}{|AC|} = \frac{?}{16.1}$

$|AC'| = r \times |AC|$

$= \frac{1}{7} \times 16.1$

$|AC'| = 2.3$



Based on the information provided we cannot tell if the $\triangle$'s are similar. We need the lengths of $\overline{AC'}$ and $\overline{AB'}$

a. Based on the information given, is $\triangle ABC \sim \triangle AB'C'$? Explain.

b. Assume line BC is parallel to line $B'C'$. With this information, can you say that $\triangle ABC \sim \triangle AB'C'$? Explain.

If $BC \parallel B'C'$ then $\angle C \cong \angle C'$ because they are corresponding $\angle$'s on parallel lines. $\triangle ABC \sim \triangle AB'C'$ because they have 2 pairs of corresponding $\angle$'s that are equal in measure

AA criterion

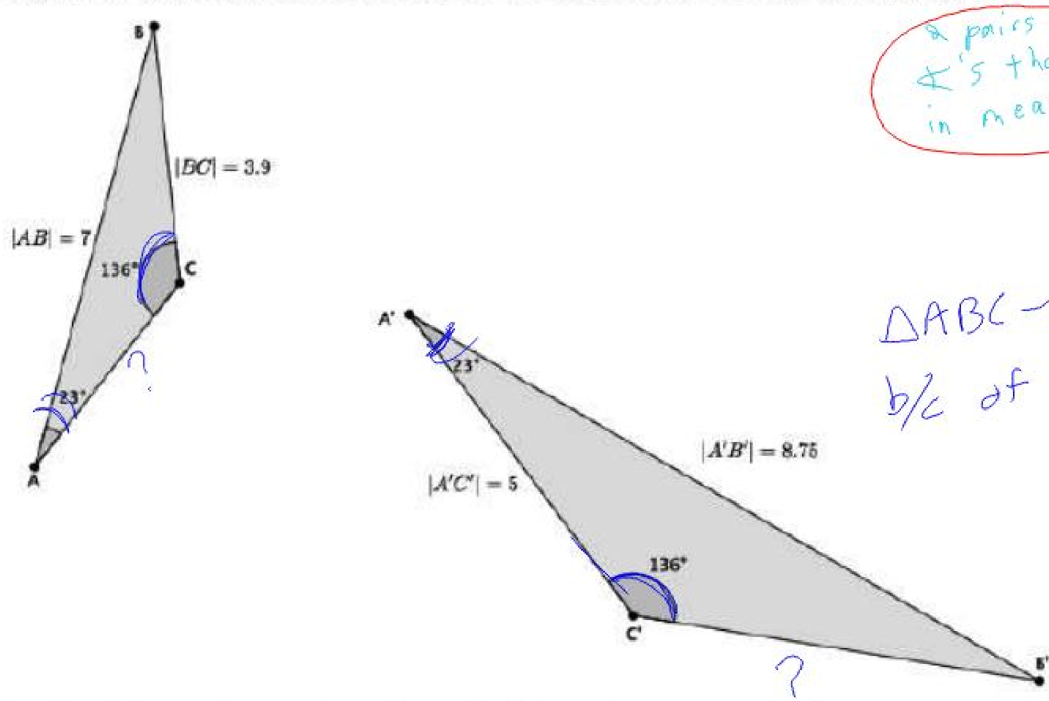
c. Given that $\triangle ABC \sim \triangle AB'C'$, determine the length of side AC'.

$|AC'| = 2.3$

d. Given that $\triangle ABC \sim \triangle AB'C'$, determine the length of side AB'.

$|AB'| = 1.1$

3. In the diagram below, you have $\triangle ABC$ and $\triangle A'B'C'$. Use this information to answer parts (a)–(c).



$\triangle ABC \sim \triangle A'B'C'$

b/c of the AA criterion

a. Based on the information given, is $\triangle ABC \sim \triangle A'B'C'$? Explain.

b. Given that $\triangle ABC \sim \triangle A'B'C'$, determine the length of side $B'C'$.

c. Given that $\triangle ABC \sim \triangle A'B'C'$, determine the length of side AC.