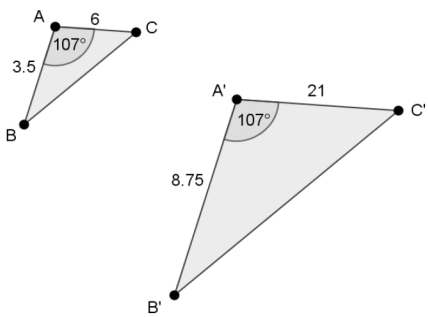
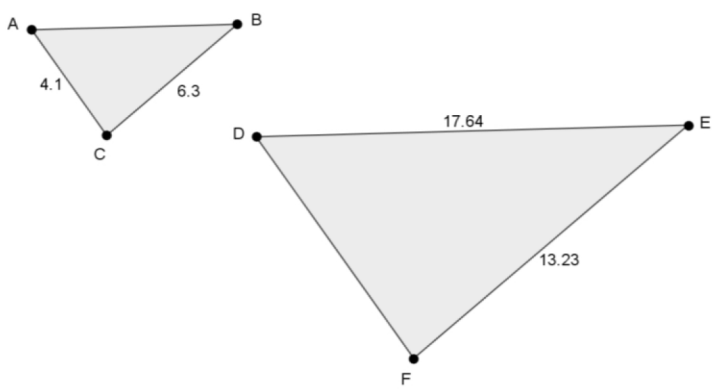
Name _____ Date_____

More About Similar Triangles

1. In the diagram below, you have $\triangle ABC$ and $\triangle A'B'C'$. Based on the information given, is $\triangle ABC \sim \triangle A'B'C'$? Explain.



2. In the diagram below, $\triangle ABC \sim \triangle DEF$. Use the information to answer parts (a)–(b).



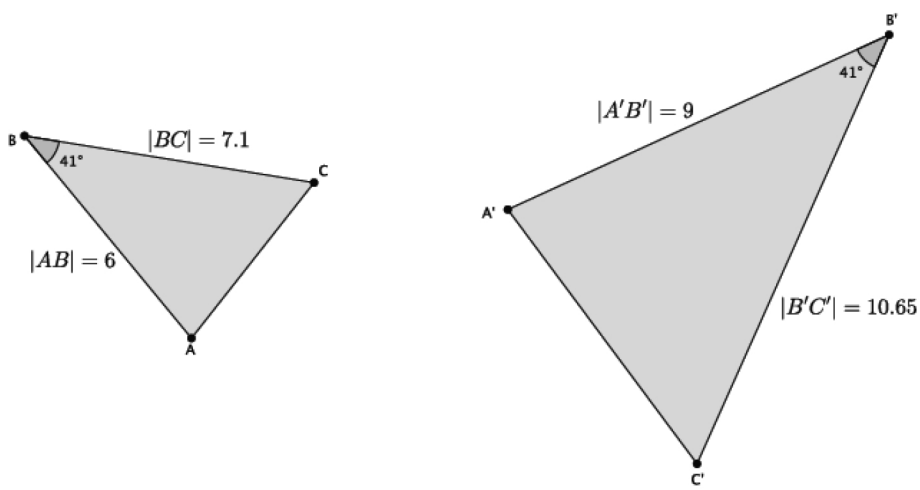
a. Determine the length of side AB. Show work that leads to your answer.

b. Determine the length of side DF. Show work that leads to your answer.

© 2014 Common Core, Inc. Some rights reserved. commoncore.org

This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License.

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



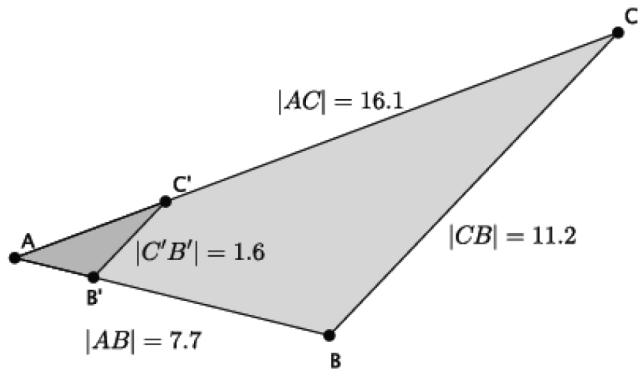
a. Based on the information given, is $\triangle ABC \sim \triangle A'B'C'$? Explain.

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

© 2014 Common Core, Inc. Some rights reserved. **commoncore.org**

This work is licensed under a
Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License.

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



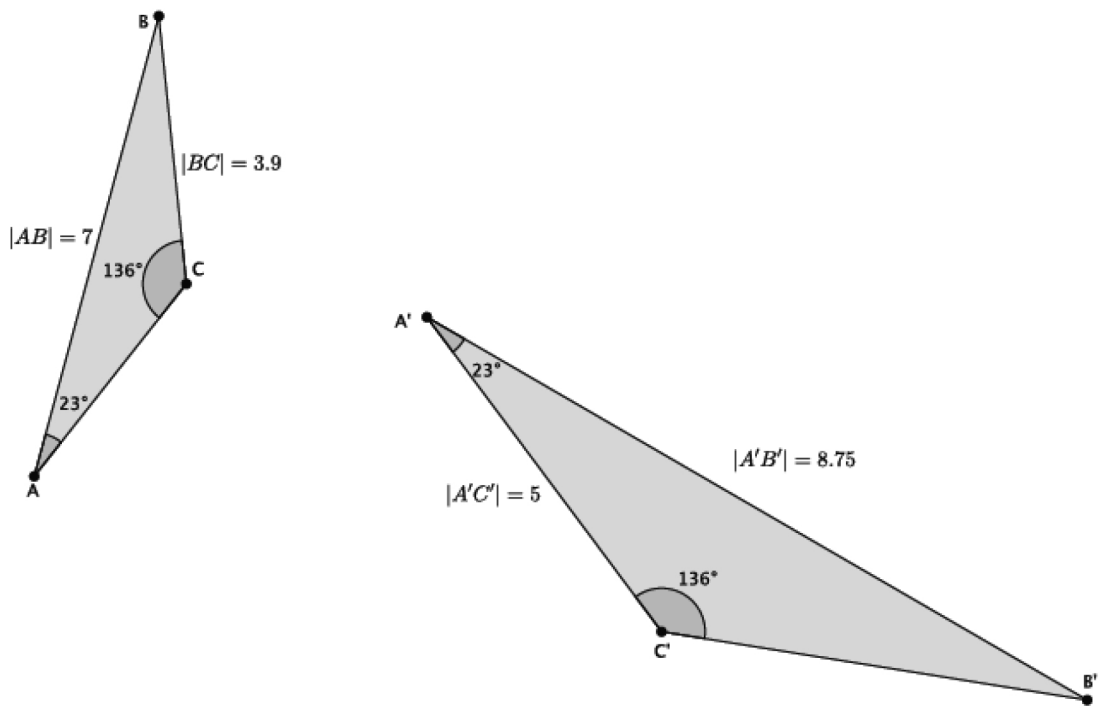
a. Based on the information given, is $\triangle ABC \sim \triangle AB'C'$? Explain.

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

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

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

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



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

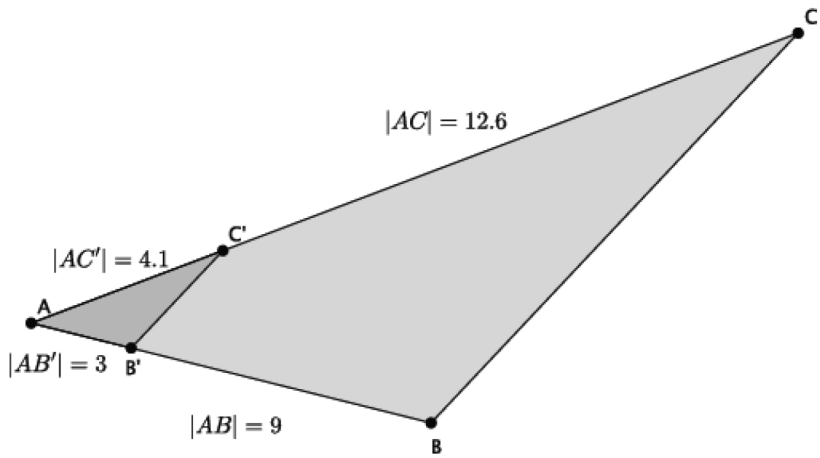
b. Given that $\triangle ABC \sim \triangle A'B'C'$, determine the length of side $B'C'$.

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

© 2014 Common Core, Inc. Some rights reserved. commoncore.org

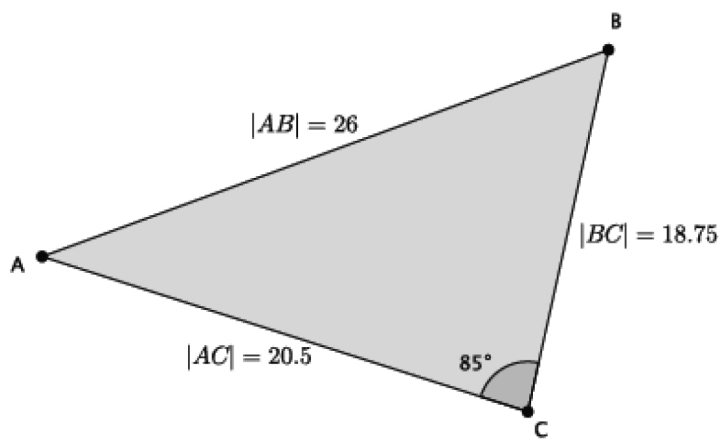
This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License.

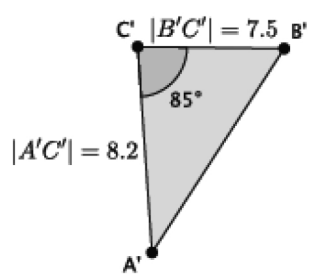
4. In the diagram below, you have $\triangle ABC$ and $\triangle AB'C'$. Use this information to answer the question below.



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

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





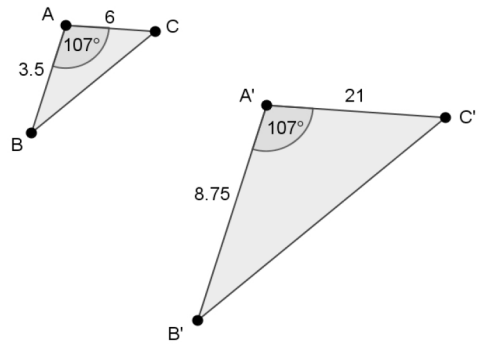
a. Based on the information given, is $\triangle ABC \sim \triangle A'B'C'$? Explain.

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

© 2014 Common Core, Inc. Some rights reserved. **commoncore.org**

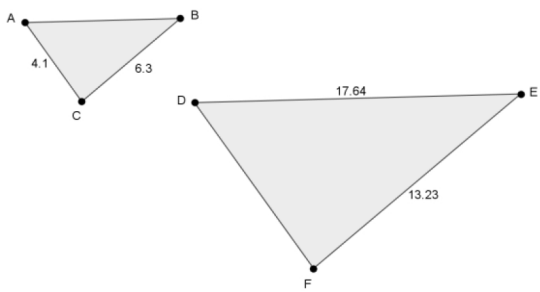
This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License.

1. **In the diagram below, you have $\triangle ABC$ and $\triangle A'B'C'$. Based on the information given, is $\triangle ABC \sim \triangle A'B'C'$? Explain.**



Since there is only information about one pair of corresponding angles, we need to check to see if corresponding sides have equal ratios. That is, does $\frac{|AB|}{|A'B'|} = \frac{|AC|}{|A'C'|}$, *or does* $\frac{3.5}{8.75} = \frac{6}{21}$? *The products are not equal,* $73.5 \neq 52.5$. *Since the corresponding sides do not have equal ratios, the triangles are not similar.*

2. **In the diagram below, $\triangle ABC \sim \triangle DEF$. Use the information to answer parts (a)–(b).**



a. **Determine the length of side AB. Show work that leads to your answer.**

Let x represent the length of side AB.

Then $\frac{x}{17.64} = \frac{6.3}{13.23}$. *We are looking for the value of x that makes the fractions equivalent. Therefore,*

$111.132 = 13.23x$, *and* $x = 8.4$. *The length of side AB is* 8.4.

b. **Determine the length of side DF. Show work that leads to your answer.**

Let y represent the length of side DF.

Then $\frac{4.1}{y} = \frac{6.3}{13.23}$. *We are looking for the value of y that makes the fractions equivalent. Therefore,*

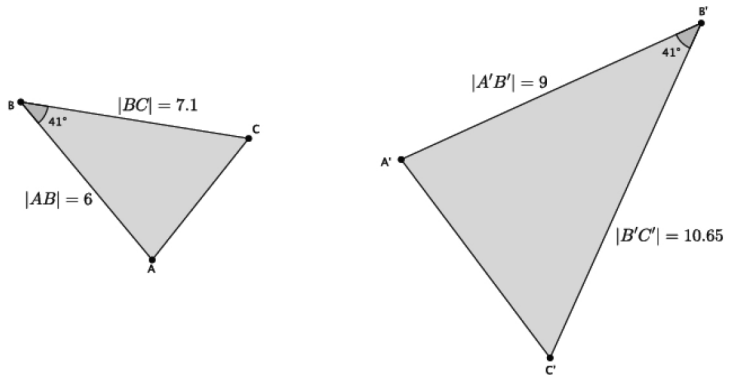
$54.243 = 6.3y$, *and* $8.61 = y$. *The length of side DF is* 8.61.

© 2014 Common Core, Inc. Some rights reserved. commoncore.org

This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License.

Students practice presenting informal arguments as to whether or not two given triangles are similar. Students practice finding measurements of similar triangles.

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



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

Yes, $\triangle ABC \sim \triangle A'B'C'$. Since there is only information about one pair of corresponding angles being equal, then the corresponding sides must be checked to see if their ratios are equal.

$$\frac{10.65}{7.1} = \frac{9}{6}$$
$$63.9 = 63.9$$

Since the cross products are equal, the triangles are similar.

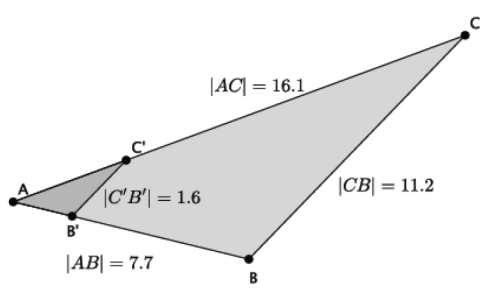
b. Assume the length of side AC is 4.3. What is the length of side $A'C'$?

Let x represent the length of $A'C'$.

$$\frac{x}{4.3} = \frac{9}{6}$$

We are looking for the value of x that makes the fractions equivalent. Therefore, $6x = 38.7$, and $x = 6.45$. The length of side $A'C'$ is 6.45.

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



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

There is not enough information provided to determine if the triangles are similar. We would need information about a pair of corresponding angles or more information about the side lengths of each of the triangles.

© 2014 Common Core, Inc. Some rights reserved. commoncore.org

This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License.

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 line BC is parallel to line $B'C'$, then $\triangle ABC \sim \triangle AB'C'$. Both triangles share $\angle A$. Another pair of equal angles is $\angle AB'C'$ and $\angle ABC$. They are equal because they are corresponding angles of parallel lines. By the AA criterion, $\triangle ABC \sim \triangle AB'C'$.

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

Let x represent the length of AC'.

$$\frac{x}{16.1} = \frac{1.6}{11.2}$$

We are looking for the value of x that makes the fractions equivalent. Therefore, $11.2x = 25.76$, and $x = 2.3$. The length of AC' is 2.3.

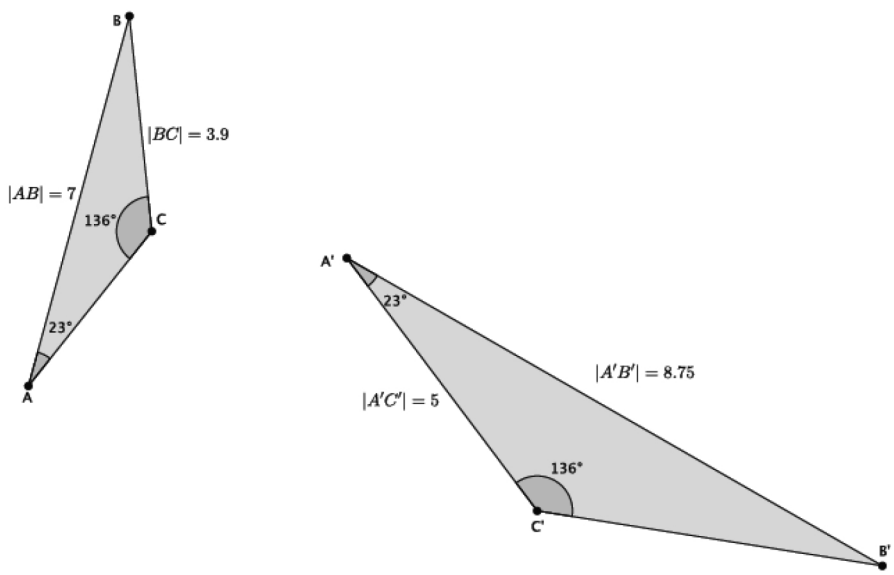
d. Given that $\triangle ABC \sim \triangle AB'C'$, determine the length of side AB'.

Let y represent the length of AB'.

$$\frac{y}{7.7} = \frac{1.6}{11.2}$$

We are looking for the value of y that makes the fractions equivalent. Therefore, $11.2y = 12.32$, and $y = 1.1$. The length of side AB' is 1.1.

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



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

Yes, $\triangle ABC \sim \triangle A'B'C'$. There are two pairs of corresponding angles that are equal in measure. Namely, $\angle A = \angle A' = 23°$, and $\angle C = \angle C' = 136°$. By the AA criterion, these triangles are similar.

© 2014 Common Core, Inc. Some rights reserved. commoncore.org

This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License.

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

Let x represent the length of $B'C'$.

$$\frac{x}{3.9} = \frac{8.75}{7}$$

We are looking for the value of x that makes the fractions equivalent. Therefore, $7x = 34.125$, and $x = 4.875$. The length of side $B'C'$ is 4.875.

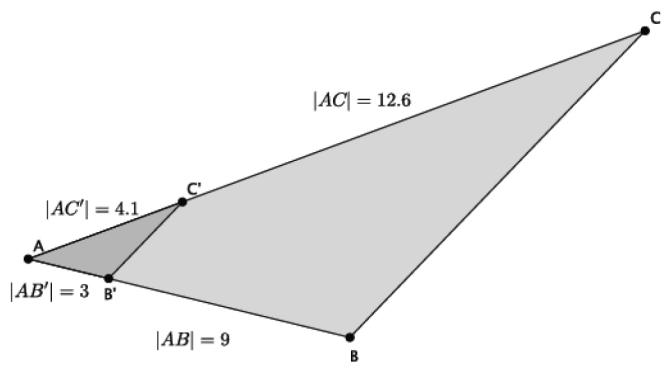
c. **Given that $\triangle ABC \sim \triangle A'B'C'$, determine the length of side AC.**

Let y represent the length of side AC.

$$\frac{5}{y} = \frac{8.75}{7}$$

We are looking for the value of y that makes the fractions equivalent. Therefore, $8.75y = 35$, and $y = 4$. The length of side AC is 4.

4. **In the diagram below, you have $\triangle ABC$ and $\triangle AB'C'$. Use this information to answer the question below.**



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

No, $\triangle ABC$ is not similar to $\triangle AB'C'$. Since there is only information about one pair of corresponding angles, then we must check to see that the corresponding sides have equal ratios. That is, the following must be true:

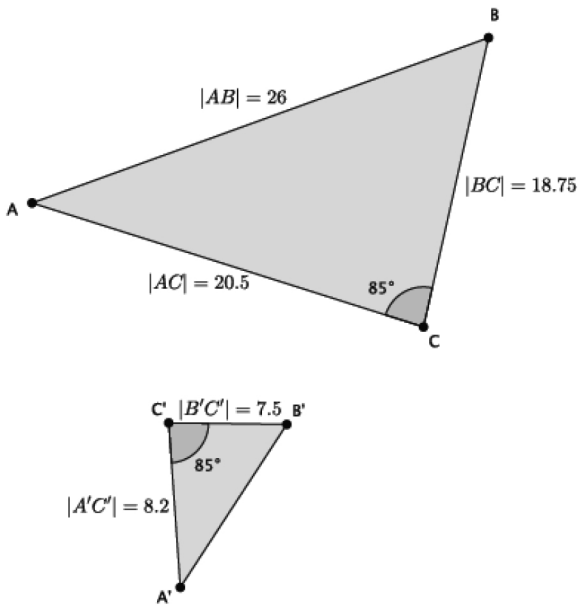
$$\frac{9}{3} = \frac{12.6}{4.1}.$$

When we compare products of each numerator with the denominator of the other fraction, we see that $36.9 \neq 37.8$. Since the corresponding sides do not have equal ratios, the fractions are not equivalent, and the triangles are not similar.

© 2014 Common Core, Inc. Some rights reserved. commoncore.org

This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License.

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



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

Yes, $\triangle ABC \sim \triangle A'B'C'$. Since there is only information about one pair of corresponding angles being equal, then the corresponding sides must be checked to see if their ratios are equal.

$$\frac{8.2}{20.5} = \frac{7.5}{18.75}$$

When we compare products of each numerator with the denominator of the other fraction, we see that $153.75 = 153.75$. Since the products are equal, the fractions are equivalent, and the triangles are similar.

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

Let x represent the length of $A'B'$.

$$\frac{x}{26} = \frac{7.5}{18.75}$$

We are looking for the value of x that makes the fractions equivalent. Therefore, $18.75x = 195$, and $x = 10.4$. The length of side $A'B'$ is 10.4.

© 2014 Common Core, Inc. Some rights reserved. **commoncore.org**

This work is licensed under a
Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License.