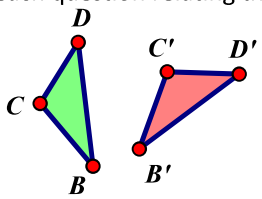
Transformations – Isometric Transformations

G.CO.A.4 Hw Section 19.3 Name_____

Answer each question relating the preimage to the image.

1.



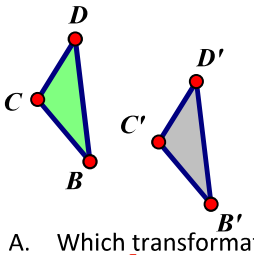
A. Which transformation has taken place?
ROTATION

B. Distances (Same or Different)

C. Orientation (Same or Different)

D. Special Points Center of Rotation
O = O′

2.



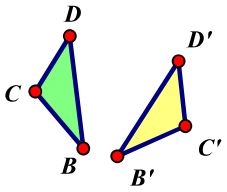
A. Which transformation has taken place?
TRANSLATION

B. Distances (Same or Different)

C. Orientation (Same or Different)

D. Special Points None - ALL MOVE

3.



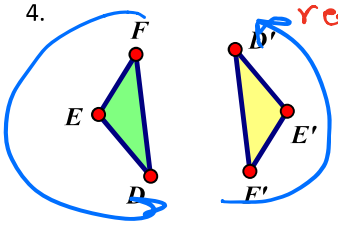
A. Which transformation has taken place?
REFLECTION

B. Distances (Same or Different)

C. Orientation (Same or Different)

D. Special Points Points on Line of reflection A = A′

4.



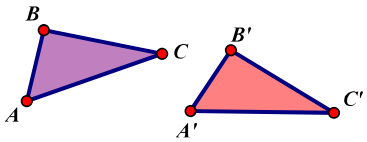
A. Which transformation has taken place?
ROTATION

B. Distances (Same or Different)

C. Orientation (Same or Different)

D. Special Points Center of Rotation
O = O′

5. Given that ΔABC was mapped to ΔA′B′C′ using a single transformation.



a) Why couldn't this mapping have resulted by a single translation?

$AA' \neq BB' \neq CC'$

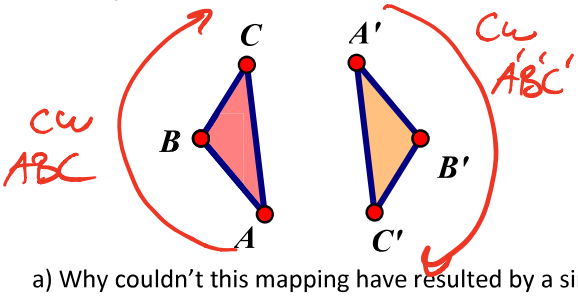
b) What transformation must have mapped these two triangles? Explain your answer.

ROTATION

a) Same orientation

b) Different Distances
$(AA' \neq BB' \neq CC')$

6. Given that ΔABC was mapped to ΔA′B′C′ using a single transformation.



a) Why couldn't this mapping have resulted by a single reflection?

ORIENTATION is the Same
∴ NOT A Reflection

b) What transformation must have mapped these two triangles? Explain your answer.

ROTATION

a) Same orientation

b) Different Distances
$(AA' \neq BB' \neq CC')$

c) $\overline{AA'} \not\parallel \overline{BB'} \not\parallel \overline{CC'}$

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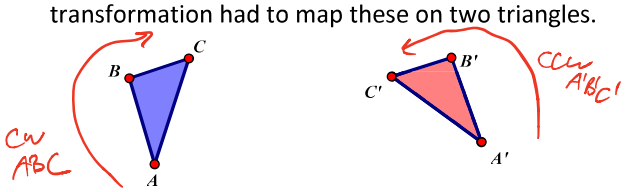
7. ΔABC is congruent to ΔA'B'C'. A student tries to determine which of these single transformations mapped ΔABC onto ΔA'B'C'. She concludes that a reflection had to be involved and more than one transformation had to map these on two triangles.



a. How can she conclude that a reflection was involved?

ORIENTATION IS Different

b. How can she conclude that this wasn't just a single reflection?

Because $\overline{AA'} \nparallel \overline{BB'} \nparallel \overline{CC'}$

8. Determine the location of Point A,

a) after a reflection A = A', where was point A?

ON the line of reflection

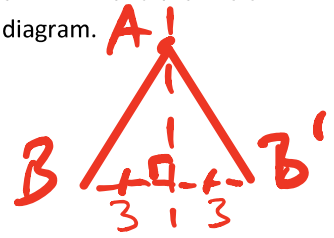
b) after a rotation of 27° A = A', where was point A?

Center of rotation

9. After a reflection AA' = 24 cm, how far was A away from the line of reflection?

12 cm

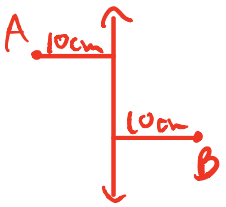
10. If after a reflection A = A' and BB' = 6 cm. What is the relationship between ∠BAB' and the line of reflection. Draw a diagram.



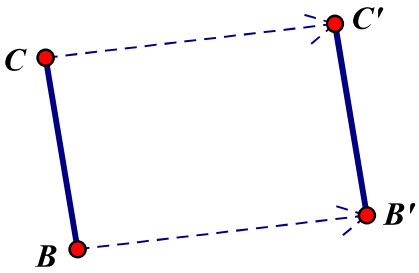
The line of reflection is the angle bisector of ∠BAB'

11. The distance from point A to the line of reflection is 10 cm, and the distance from point B to the line of reflection is also 10 cm. Jeffrey concludes that B is the image of A under a reflection. What do you think of this conclusion?

This doesn't have to be true.



12. $\overline{BC}$ was translated by the arrow making $\overline{BC} \cong \overline{B'C'}$ and $\overline{BC} \parallel \overline{B'C'}$.



a) What other segments in the diagram are congruent?

$\overline{CC'} \cong \overline{BB'}$

b) What other segments in the diagram are parallel?

$\overline{CC'} \parallel \overline{BB'}$