

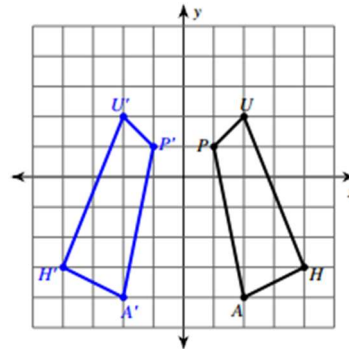
Unit 2A Review: Transformations & Triangle Congruence

Learning Target #1: Rigid Transformations

Multiple Choice: Determine the rule described in the transformations below.

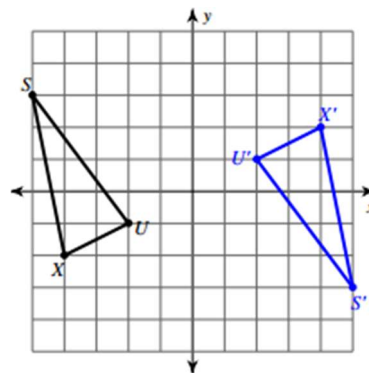
1. Which transformation has occurred to quadrilateral AHUP?

- a. rotated 90°
- b. reflected across $x - axis$
- c. rotated 180°
- d. reflected across $y - axis$



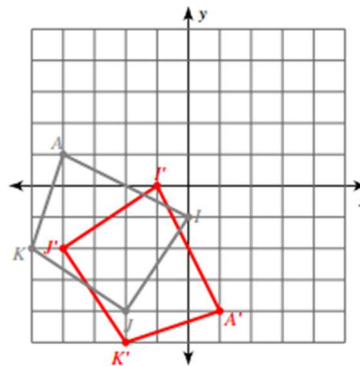
2. Which transformation has occurred to triangle UXS?

- a. rotated 90°
- b. reflected across $x - axis$
- c. rotated 180°
- d. reflected across $y - axis$



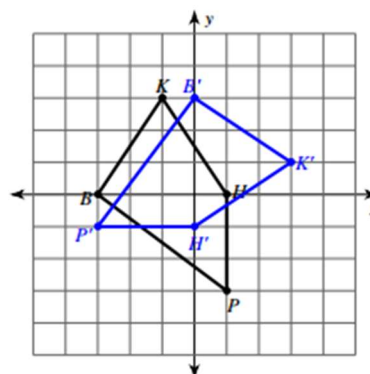
3. Which transformation has occurred to quadrilateral AKJI?

- a. reflected across $y = x$
- b. rotated 270°
- c. reflected across $x - axis$
- d. rotated 360°



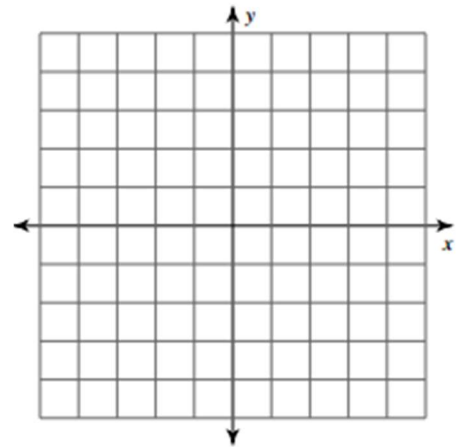
4. Which transformation has occurred to quadrilateral BKHP?

- a. reflected across $y = x$
- b. rotated 270° CCW
- c. reflected across $x - axis$
- d. rotated 360°



Find the coordinates of the vertices of each figure after the transformations. Use the graph below as a visual to help.

5. What would be the vertices of the image if the pre-image had vertices $A(2, -2), B(1, 2), C(3, 3), D(5, 2)$ and they were rotated 180° CW about the origin?



- a. $A'(2, -2), B'(-1, 2), C'(-3, 3), D'(-5, 2)$ c. $A'(-2, -2), B'(2, -1), C'(3, -3), D'(2, -5)$
 b. $A'(-2, 2), B'(-1, -2), C'(-3, -3), D'(-5, -2)$ d. $A'(2, -2), B'(2, 1), C'(3, -3), D'(2, 5)$

6. What would be the vertices of the image if the pre-image had vertices $A(2, -2), B(1, 2), C(3, 3), D(5, 2)$ and they were reflected across the x-axis?

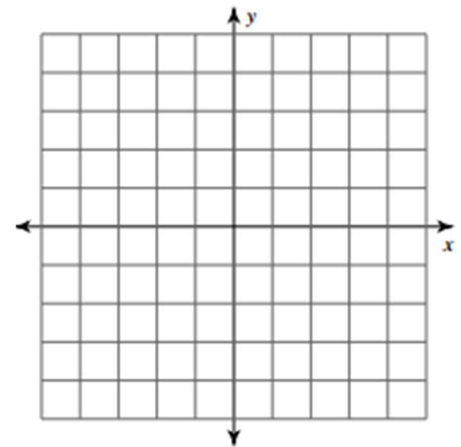
- a. $A'(2, -2), B'(-1, 2), C'(-3, 3), D'(-5, 2)$ c. $A'(-2, -2), B'(-1, -2), C'(-3, -3), D'(-5, 2)$
 b. $A'(-2, 2), B'(-1, -2), C'(-3, -3), D'(-5, -2)$ d. $A'(2, 2), B'(1, -2), C'(3, -3), D'(5, -2)$

7. What would be the vertices of the image if the pre-image had vertices $A(2, -2), B(1, 2), C(3, 3), D(5, 2)$ and they were rotated 270° CCW about the origin?

- a. $A'(2, -2), B'(-1, 2), C'(-3, 3), D'(-5, 2)$ c. $A'(-2, -2), B'(2, -1), C'(3, -3), D'(2, -5)$
 b. $A'(-2, 2), B'(-1, -2), C'(-3, -3), D'(-5, -2)$ d. $A'(2, -2), B'(2, 1), C'(3, -3), D'(2, 5)$

8. On the graph to the right draw and label the triangle with vertices $A(-4, 5), B(-3, 2), C(-1, 4)$ after all of the transformations listed below are done. DRAW all the images.

- i. *Translated 2 unit right and 2 units down*
 A' _____ B' _____ C' _____
- ii. *Reflect across $y = x$*
 A'' _____ B'' _____ C'' _____
- iii. *Rotate 90 degrees CCW about the origin*
 A''' _____ B''' _____ C''' _____

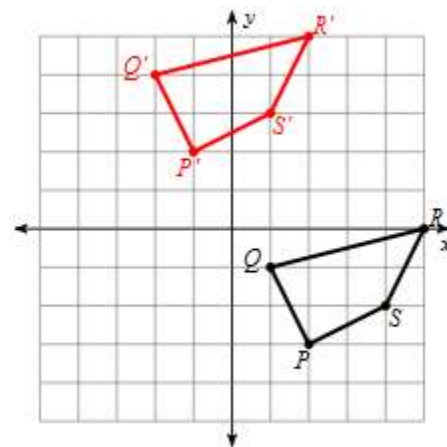
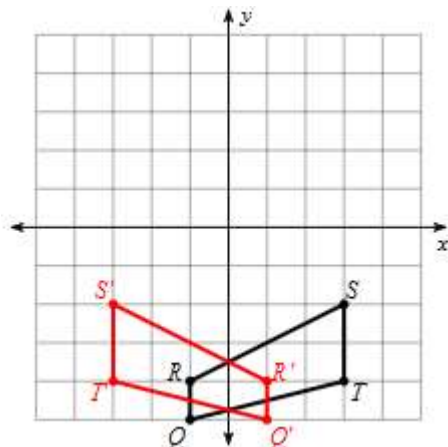
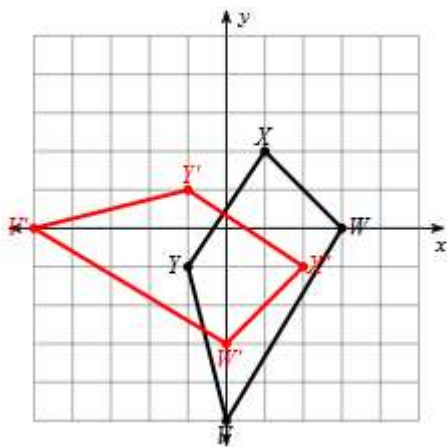


9. Name the ordered pair rule that transforms each figure into its image.

Rule: $(x, y) \rightarrow$ _____

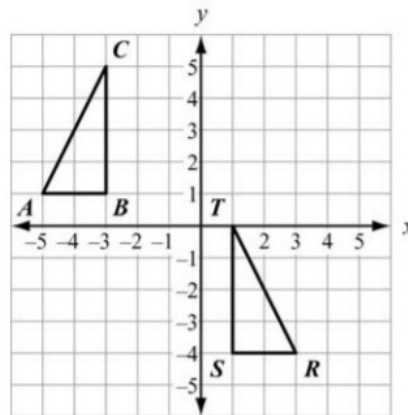
Rule: $(x, y) \rightarrow$ _____

Rule: $(x, y) \rightarrow$ _____

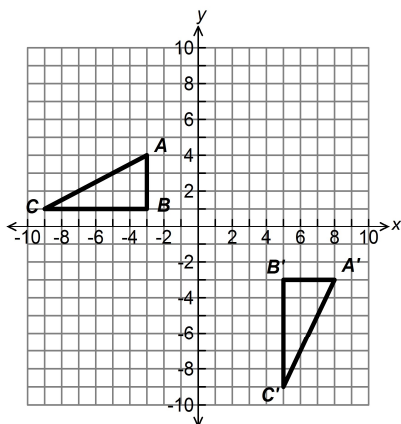


10. Which sequence of transformations maps $\triangle ABC$ to $\triangle RST$?

- A. Reflect $\triangle ABC$ across the line $x = -1$. Then translate the result 1 unit down.
- B. Reflect $\triangle ABC$ across the line $x = -1$. Then translate the result 5 units down.
- C. Translate $\triangle ABC$ 6 units to the right. Then rotate the result 90° clockwise about the point $(1, 1)$.
- D. Translate $\triangle ABC$ 6 units to the right. Then rotate the result 90° counter-clockwise about the point $(1, 1)$.



11. Describe the sequences required for the following transformation below:



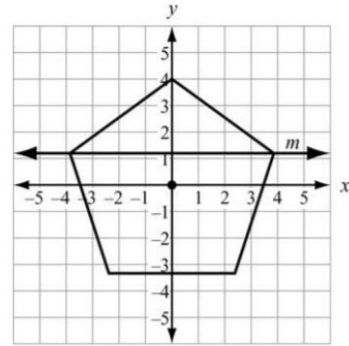
12. Quadrilateral ABCD is rotated 90° counterclockwise (or 270° clockwise) about the origin. Name the new coordinates.

Original Coordinates	A (1, 3)	B (3, 4)	C (6, 5)	D (1, 5)
New Coordinates				

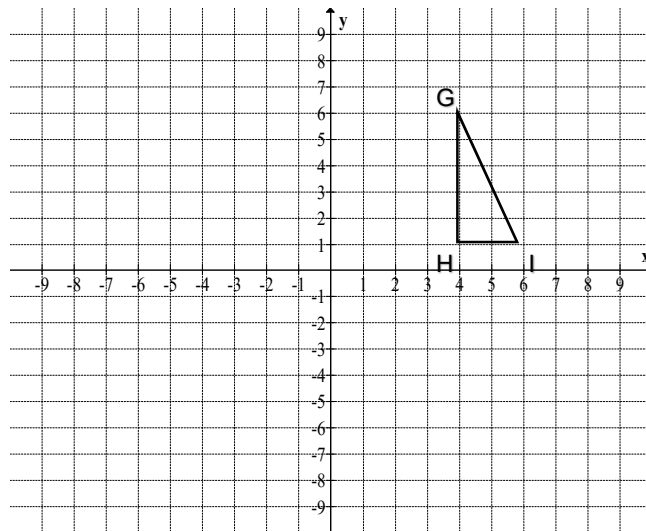
13. A regular pentagon is centered about the origin and has a vertex at (0,4).

Which transformation maps the pentagon to itself?

- A. a reflection across line m
- B. A reflection across the x-axis.
- C. A clockwise rotation of 100° about the origin
- D. A clockwise rotation of 144° about the origin



14. Translate the triangle GHI with the vector $\langle -6, 3 \rangle$, then translate it with the vector $\langle 2, -8 \rangle$.



Name the Vertices of the image: G'' _____ H'' _____ I'' _____

Name a single translation vector that could get from GHI to $G''H''I''$: _____

15. Point C is located at (3,2), after reflecting the point over the x-axis, which quadrant will the image of point C be located in?

16. Point F is located at (-4, 2), after rotating 90° clockwise about the origin, which quadrant will the image of F be located in?

Learning Target #2: Congruent Triangles & Proofs

Complete each congruence statement by naming the corresponding angle or side.

17. $\triangle LKJ \cong \triangle LBC$

18. $\triangle VWX \cong \triangle VIJ$

19. $\triangle KLM \cong \triangle LKC$

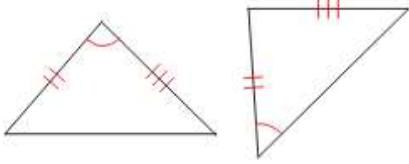
$\angle JLK \cong$ _____

$\overline{WX} \cong$ _____

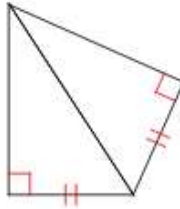
$\angle M \cong$ _____

State if the two triangles are congruent. If they are, state how you know.

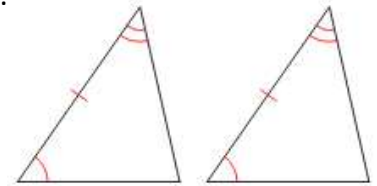
20.



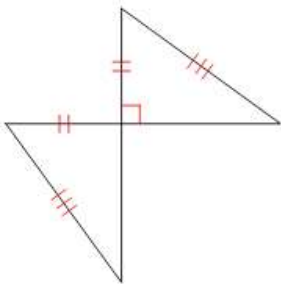
21.



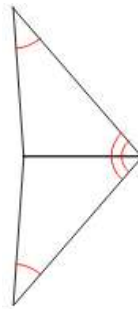
22.



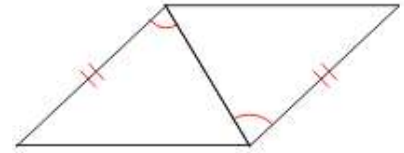
23.



24.

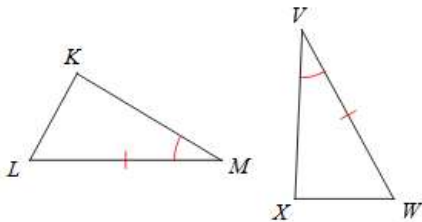


25.

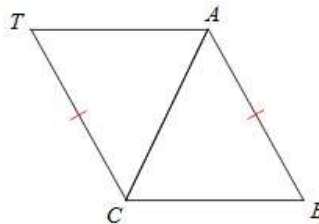


State what additional information is required in order to know that the triangles are congruent for the reason given.

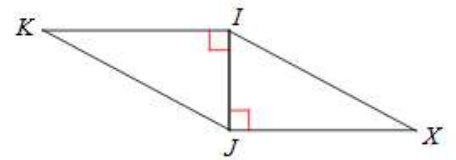
26. ASA



27. SSS



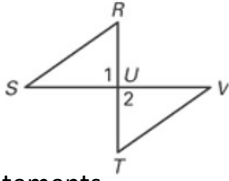
28. HL



Complete the proofs. 29. – 31.

Given: $\overline{RT} \perp \overline{SV}$, $\overline{RS} \cong \overline{TV}$, $\overline{RU} \cong \overline{TU}$

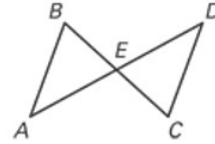
Prove: $\triangle RUS \cong \triangle TUV$



Statements	Reasons
1. $\overline{RT} \perp \overline{SV}$; $\overline{RS} \cong \overline{TV}$; $\overline{RU} \cong \overline{TU}$	1. _____
2. $\angle 1$ and $\angle 2$ are right angles	2. _____
3. _____	3. _____
4. $\triangle RUS \cong \triangle TUV$	4. _____

Given: $\overline{AB} \parallel \overline{DC}$, $\overline{AB} \cong \overline{DC}$

Prove: $\overline{AE} \cong \overline{DE}$

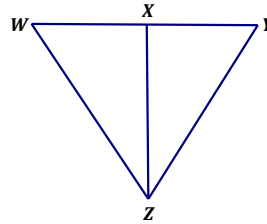


Statements	Reasons
1. $\overline{AB} \parallel \overline{DC}$; $\overline{AB} \cong \overline{DC}$	1. _____
2. $\angle ABE \cong \angle DCE$	2. _____
3. _____	3. _____
4. _____	4. _____
5. $\triangle AEB \cong \triangle DEC$	5. _____
6. $\overline{AE} \cong \overline{DE}$	6. _____

31. Given: $\angle WXZ$ and $\angle YXZ$ are right angles

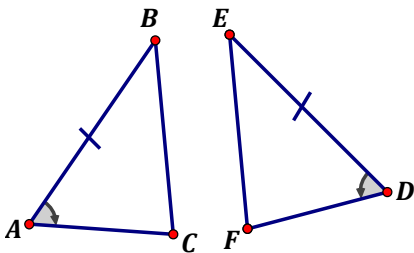
$\overline{WZ} \cong \overline{YZ}$

Prove: $\angle W \cong \angle Y$



Statements	Reasons
1.	1. Given
2.	2.
3.	3.
4.	4.
5. $\triangle WXZ \cong \triangle YXZ$	5.
6. $\angle W \cong \angle Y$	6.

32. If $\triangle ABC \cong \triangle DEF$ by AAS, what additional piece of information needs to be marked?



_____ \cong _____