

Name: _____

Date: _____

CC Geometry Honors

Unit 2 Quiz Review
Transformations

MULTIPLE CHOICE

1. Which of the following is NOT an isometry?

- A) Reflection B) Dilation C) Rotation D) Translation

2. \overline{AB} is reflected to create image $\overline{A'B'}$. Which statement is always true?

- A) $A'A = B'B$ B) $AB = A'B'$ C) $\overline{AB} \perp \overline{A'B'}$ D) $\overline{AA'} \perp \overline{BB'}$

3. If line g is the perpendicular bisector of \overline{AB} and M is the midpoint of \overline{AB} , which statement is false?

- A) $r_{\text{line } g}(A) = B$ B) $r_{\text{line } g}(M) = M$ C) $\overline{AB} \perp \text{line } g$ D) $2AB = AM$

4. If $r_{x \text{ axis}}(A) = A$ and A is not the origin then

- A) A is on the y axis B) A is on the x axis
C) A has coordinates $(0,y)$ D) A is not on the x axis

5. If $R_{O,167^\circ}(\triangle ABC) = \triangle DEF$ then:

- A) $m\angle BOD = 167^\circ$ B) $m\angle OAD = 167^\circ$ C) $m\angle AOE = 167^\circ$ D) $m\angle FOC = 167^\circ$

6. $\triangle A'B'C'$ is the image of $\triangle ABC$ under transformation G . Line m is the perpendicular bisector of $\overline{AA'}$, $\overline{BB'}$, and $\overline{CC'}$. Which describes the transformation G ?

- A) A rotation B) A reflection C) A translation D) A dilation

7. After a figure is rotated, $A = A'$. Which statement(s) are true?

- A) The center of rotation is A B) The angle of rotation is 180°
C) Both A and B D) Neither A or B

8. A figure is transformed in a plane such that no point maps to itself. Which transformation must it be?

- A) Reflection B) Translation C) Rotation D) Dilation

9. If Quadrilateral GRTH is congruent to Quadrilateral JKOP, then which of the following is true?

A) $\angle THG \cong \angle JPO$

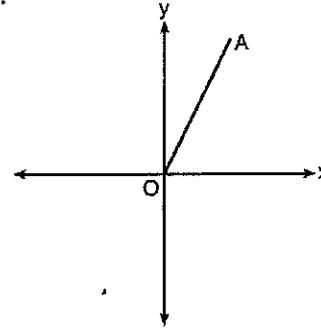
B) $\angle T \cong \angle P$

C) $\overline{TR} \cong \overline{KJ}$

D) $\overline{PH} \cong \overline{OT}$

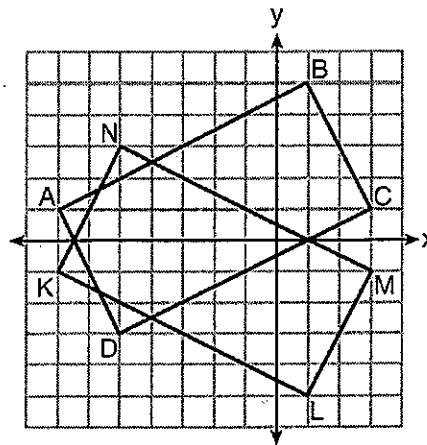
10. Which transformation of \overline{OA} would result in an image parallel to \overline{OA} ?

- 1) a translation of two units down
- 2) a reflection over the x -axis
- 3) a reflection over the y -axis
- 4) a clockwise rotation of 90° about the origin



11. On the set of axes below, rectangle $ABCD$ can be proven congruent to rectangle $KLMN$ using which transformation?

- 1) rotation
- 2) translation
- 3) reflection over the x -axis
- 4) reflection over the y -axis

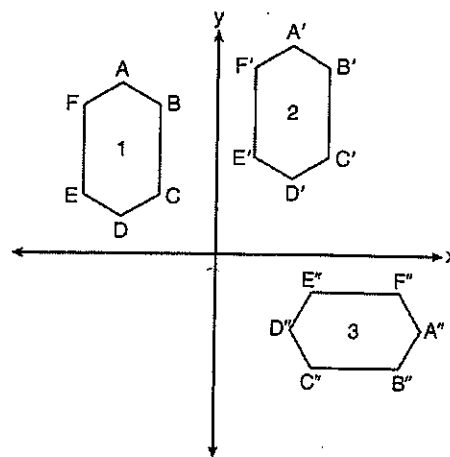


12. The vertices of $\triangle JKL$ have coordinates $J(5, 1)$, $K(-2, -3)$, and $L(-4, 1)$. Under which transformation is the image $\triangle J'K'L'$ not congruent to $\triangle JKL$?

- 1) a translation of two units to the right and two units down
- 2) a counterclockwise rotation of 180 degrees around the origin
- 3) a reflection over the x -axis
- 4) a dilation with a scale factor of 2 and centered at the origin

13. In the diagram below, congruent figures 1, 2, and 3 are drawn. Which sequence of transformations maps figure 1 onto figure 2 and then figure 2 onto figure 3?

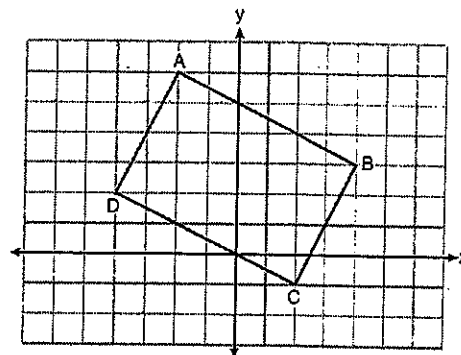
- 1) a reflection followed by a translation
- 2) a rotation followed by a translation
- 3) a translation followed by a reflection
- 4) a translation followed by a rotation



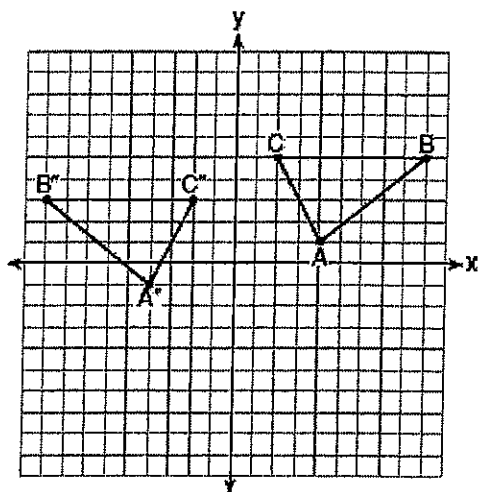
14. Quadrilateral $ABCD$ is graphed on the set of axes below.

When $ABCD$ is rotated 90° in a counterclockwise direction about the origin, its image is quadrilateral $A'B'C'D'$. Is distance preserved under this rotation, and which coordinates are correct for the given vertex?

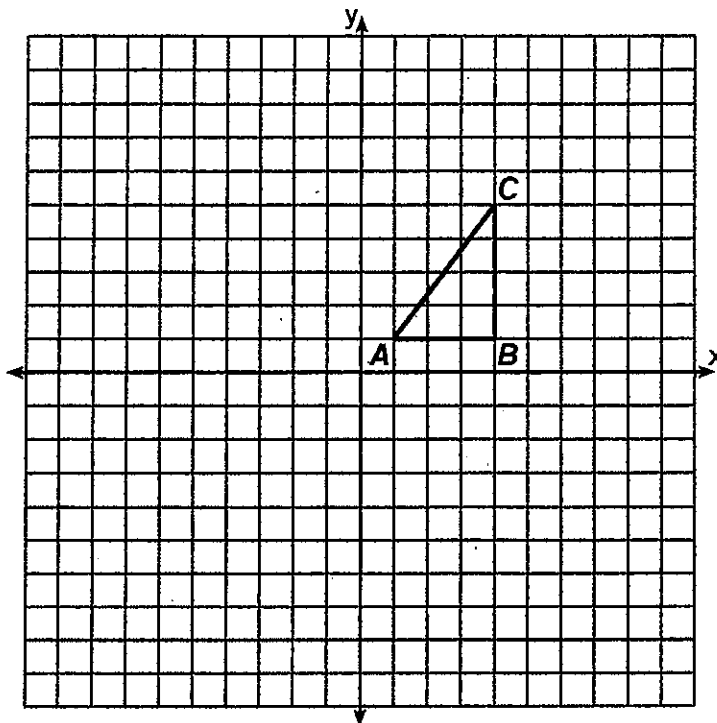
- 1) no and $C'(1, 2)$
- 2) no and $D'(2, 4)$
- 3) yes and $A'(6, 2)$
- 4) yes and $B'(-3, 4)$



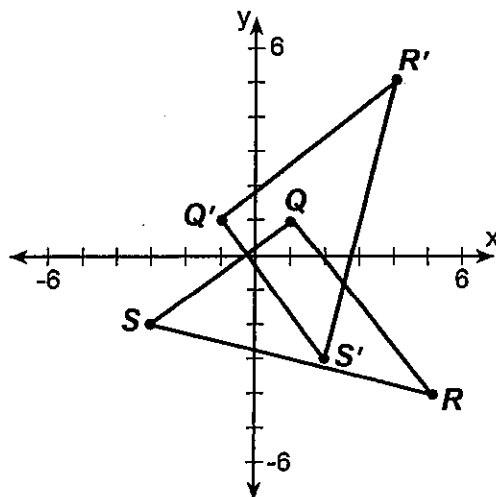
15. The graph below shows $\triangle ABC$ and its image, $\triangle A''B''C''$. Describe a sequence of rigid motions which would map $\triangle ABC$ onto $\triangle A''B''C''$.



- 16) In the diagram below, $\triangle ABC$ has coordinates $A(1,1)$, $B(4,1)$, and $C(4,5)$. Graph and label $\triangle A''B''C''$, the image of $\triangle ABC$ after the translation five units to the right and two units up followed by the reflection over the line $y = 0$.

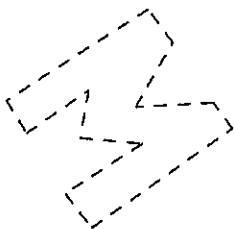
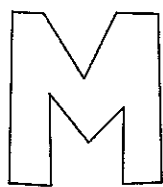


- 17) In the accompanying diagram, what rotation of $\triangle QRS$ is illustrated?

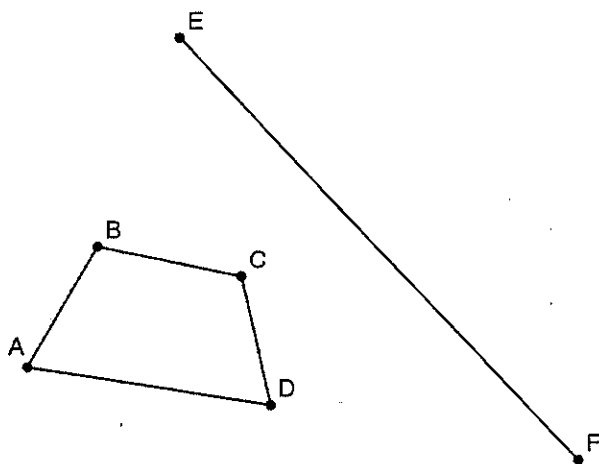


Reflections

Example 1 Construct the line of reflection across which the each image below was reflected.

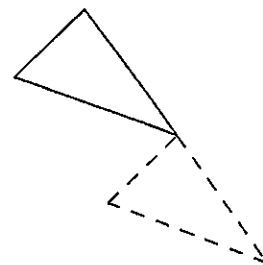
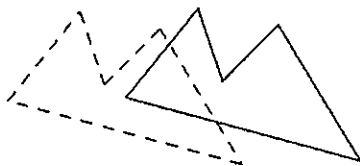
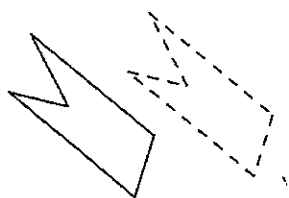


Example 2 Reflect the quadrilateral over the line segment EF.

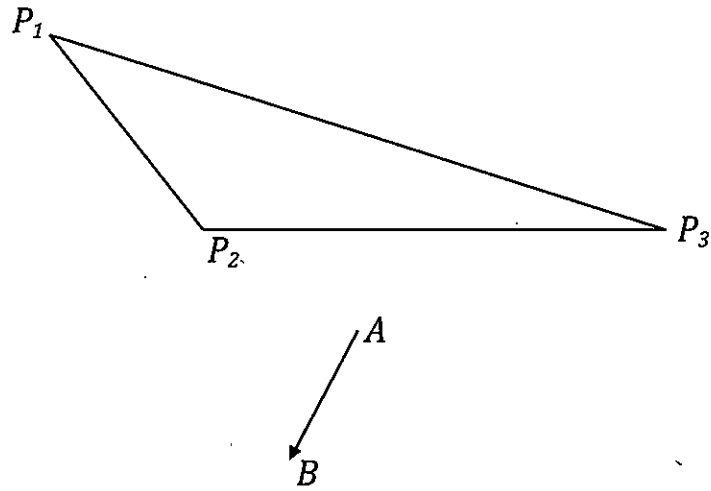


Translations

Example 1 Draw the vector that defines each translation below.



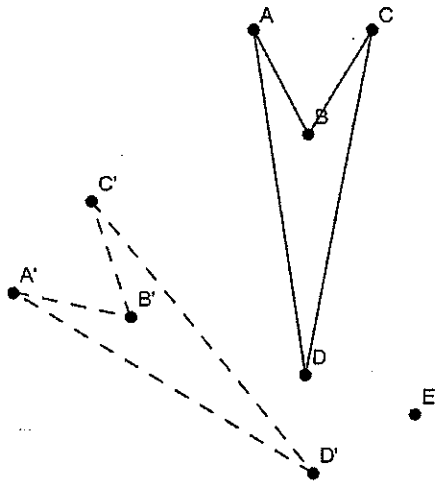
Example 2 Use your compass and straightedge to apply $T_{\overline{AB}}$ to $\triangle P_1P_2P_3$.



Rotations

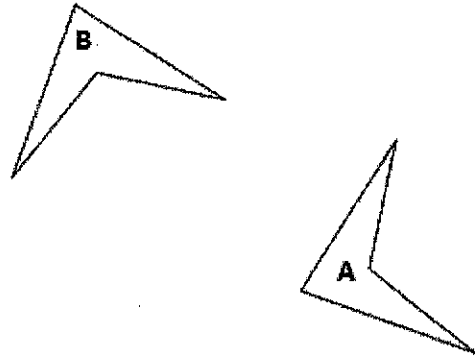
Example 1

Find the angle and direction of the rotation below



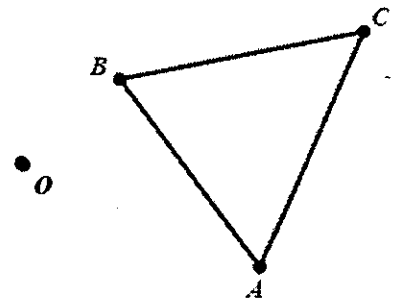
Example 2

Find the center of rotation.



Example 3

Use a compass and straight edge to construct $R_{O,180^\circ}(\triangle ABC)$



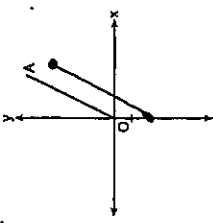
Unit 2 Quiz Review
Transformations

MULTIPLE CHOICE

- Which of the following is NOT an isometry?
 - A) Reflection
 - B) Dilation
 - C) Rotation
 - D) Translation
- \overline{AB} is reflected to create image $A'B'$. Which statement is always true?
 - A) $A'A = B'B$
 - B) $\overline{AB} \perp \overline{A'B'}$
 - C) $\overline{AA'} \perp \overline{BB'}$
 - D) $\overline{AA'} \perp \overline{BB'}$
- If line g is the perpendicular bisector of \overline{AB} and M is the midpoint of \overline{AB} , which statement is false?
 - A) $T_{line g}(A) = B$
 - B) $T_{line g}(M) = M$
 - C) $\overline{AB} \perp$ line g
 - D) $\angle ZAB = \angle AMZ$
- If $T_{x-axis}(A) = A$ and A is not the origin then
 - A) A is on the y axis
 - C) A has coordinates $(0, y)$
 - B) A is on the x axis
 - D) A is not on the x axis
- If $R_{0, 167^\circ}(\triangle ABC) = \triangle DEF$ then:
 - A) $m\angle BOD = 167^\circ$
 - B) $m\angle OAD = 167^\circ$
 - C) $m\angle AOE = 167^\circ$
 - D) $m\angle FOC = 167^\circ$
- $\triangle A'B'C'$ is the image of $\triangle ABC$ under transformation G . Line m is the perpendicular bisector of $\overline{AA'}$, $\overline{BB'}$, and $\overline{CC'}$. Which describes the transformation G ?
 - A) A rotation
 - B) A reflection
 - C) A translation
 - D) A dilation
- After a figure is rotated, $A = A'$. Which statement(s) are true?
 - A) The center of rotation is A
 - B) The angle of rotation is 180°
 - C) Both A and B
 - D) Neither A or B
- A figure is transformed in a plane such that no point maps to itself. Which transformation must it be?
 - A) Reflection
 - B) Translation
 - C) Rotation
 - D) Dilation

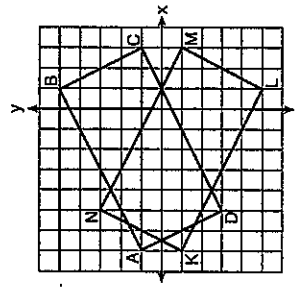
- If Quadrilateral $GRTH$ is congruent to Quadrilateral $JKOP$, then which of the following is true?
- A) $\angle THG \cong \angle JPO$
 - B) $\angle T \cong \angle P$
 - C) $\overline{TR} \cong \overline{KJ}$
 - D) $\overline{PH} \cong \overline{OT}$

10. Which transformation of \overline{OA} would result in an image parallel to \overline{OA} ?



- 1) a translation of two units down
- 2) a reflection over the x -axis
- 3) a reflection over the y -axis
- 4) a clockwise rotation of 90° about the origin

11. On the set of axes below, rectangle $ABCD$ can be proven congruent to rectangle $KLMN$ using which transformation?



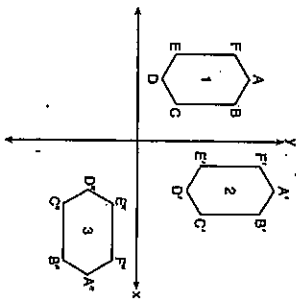
- 1) rotation
 - 2) translation
 - 3) reflection over the x -axis
 - 4) reflection over the y -axis
- $A(-7, 1)$ $K(1, 5)$
 $B(-1, 1)$ $L(1, -5)$
 $C(-1, 5)$ $M(3, -1)$
 $D(-7, 5)$ $N(-5, -3)$

12. The vertices of $\triangle JKZ$ have coordinates $J(5, 1)$, $K(-2, -3)$, and $Z(-4, 1)$. Under which transformation is the image $\triangle J'K'Z'$ not congruent to $\triangle JKZ$?

- 1) a translation of two units to the right and two units down
- 2) a counterclockwise rotation of 180 degrees around the origin
- 3) a reflection over the x -axis
- 4) a dilation with a scale factor of 2 and centered at the origin

13. In the diagram below, congruent figures 1, 2, and 3 are drawn. Which sequence of transformations maps figure 1 onto figure 2 and then figure 2 onto figure 3?

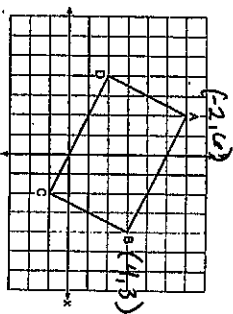
- 1) a reflection followed by a translation
- 2) a rotation followed by a translation
- 3) a translation followed by a reflection
- 4) a translation followed by a rotation



14. Quadrilateral ABCD is graphed on the set of axes below.

When ABCD is rotated 90° in a counterclockwise direction about the origin, its image is quadrilateral $A'B'C'D'$. Is distance preserved under this rotation, and which coordinates are correct for the given vertex?

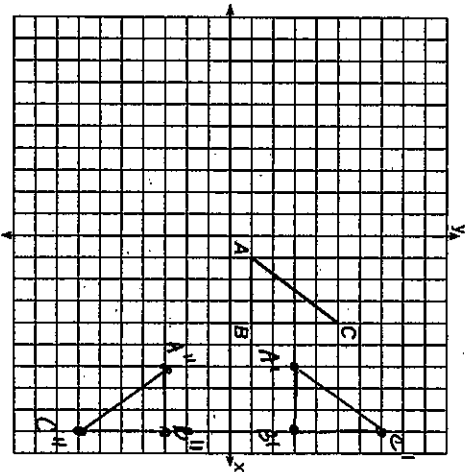
- 1) no and $C'(1,2)$
- 2) no and $D'(2,4)$
- 3) yes and $A'(6,2)$
- 4) yes and $B'(-3,4)$



16) In the diagram below, $\triangle ABC$ has coordinates $A(1,1)$, $B(4,1)$, and $C(4,5)$. Graph and label $\triangle A'B'C'$, the image of $\triangle ABC$ after the translation five units to the right and two units up followed by the reflection over the line $y=0$.

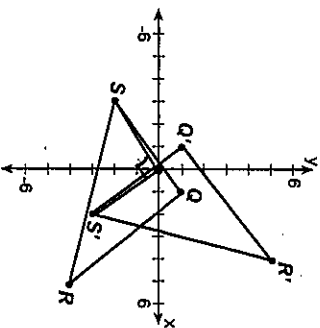
$X-AXIS$

- $A''(6,-3)$
 $B''(9,-3)$
 $C''(9,-7)$

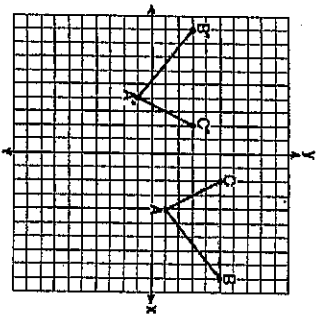


17) In the accompanying diagram, what rotation of $\triangle QRS$ is illustrated?

$R_{0,90^\circ}$ counter clockwise



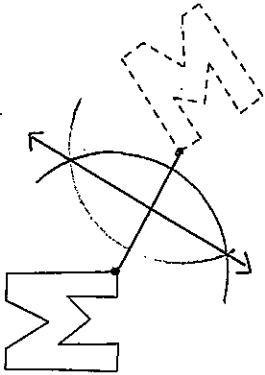
15. The graph below shows $\triangle ABC$ and its image, $\triangle A'B'C'$. Describe a sequence of rigid motions which would map $\triangle ABC$ onto $\triangle A'B'C'$.



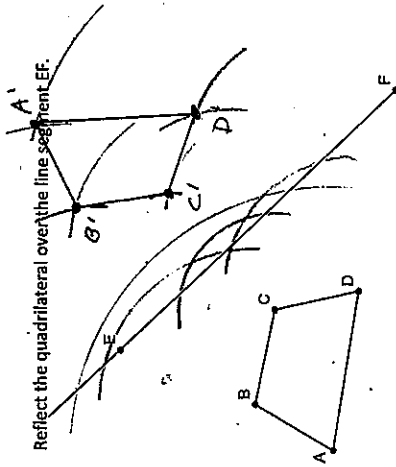
Reflection over the y-axis followed by a translation 2 units down

Reflections

Example 1 Construct the line of reflection across which the each image below was reflected.

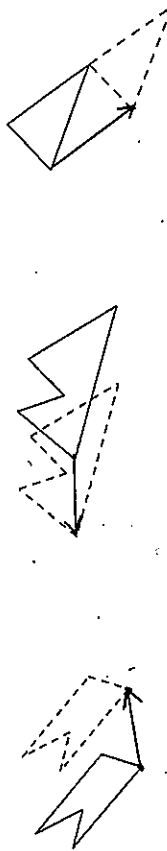


Example 2 Reflect the quadrilateral over the line segment EF.

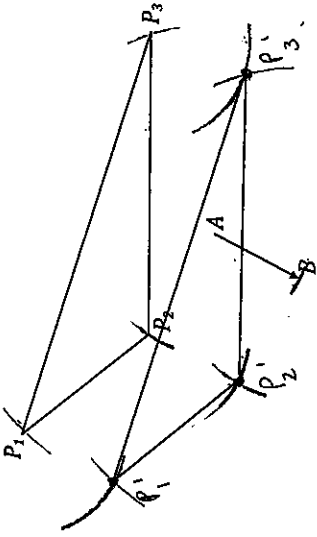


Translations

Example 1 Draw the vector that defines each translation below.



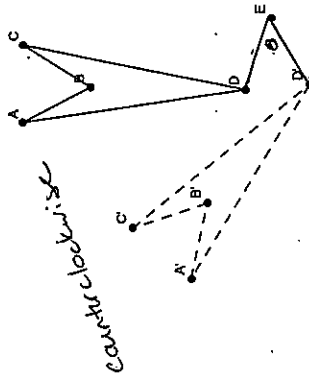
Example 2 Use your compass and straightedge to apply $T_{\vec{AB}}$ to $\triangle P_1P_2P_3$.



Rotations

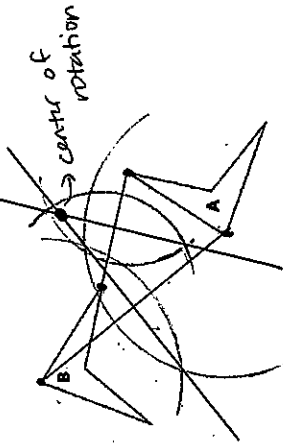
Example 1

Find the angle and direction of the rotation below



Example 2

Find the center of rotation.



Example 3

Use a compass and straight edge to construct $R_{O, 180^\circ}(\triangle ABC)$

