

Warmup Created by Alexandra Suchet

$$2 / \left(\frac{150}{150} + \left[(\sqrt{5}^2) - 5 + 10 - (8 + 2) \right] \right)$$

Get a ruler

1. Write the equation of the line of symmetry.

- Quiz Friday
- Symmetry (Line Symmetry, Rotational Symmetry)
 - Symmetry in the Coordinate Plane
 - Sequences of Transformations
 - Mapping Figures onto Each Other

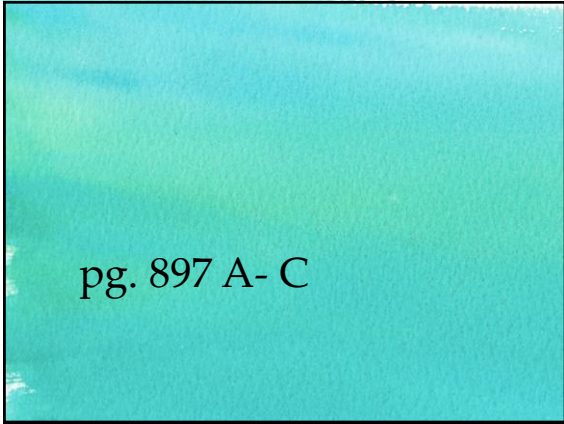
Check Homework

Do pg. 892 (3- 5)

3. Translate $\triangle ABC$ by $(4, 4)$, rotate 90 degrees counterclockwise around A , and reflect over the y -axis.

4. Reflect $\triangle ABC$ over the x -axis, translate by $(-3, -1)$, and rotate 180 degrees around the origin.

5. $(x, y) \rightarrow (x, \frac{1}{3}y) \rightarrow (-2x, -2y)$



A Trace planter $ABCD$. Describe a transformation you can use to move the tracing paper so that planter $ABCD$ is mapped onto planter $EFGH$. What does this confirm about the planters?

You can map $ABCD$ to $EFGH$ with a translation right 4 units and down 4 units. The planters are congruent because there is a rigid transformation that maps one to the other.

B Trace pools $JKLM$ and $NPQR$. Fold the paper so that pool $JKLM$ is mapped onto pool $NPQR$. Describe the transformation. What does this confirm about the pools?

You can map $JKLM$ to $NPQR$ with a reflection over the fold line. The pools are congruent because there is a rigid transformation that maps one to the other.

C Determine whether the lawns are congruent. Is there a rigid transformation that maps $\triangle LMN$ to $\triangle DEF$? What does this confirm about the lawns?

There is no sequence of rigid transformations that maps $\triangle DEF$ to $\triangle LMN$. The lawns are not congruent.

Reflect

Read pg. 898 A then Do B

B The two figures appear to be the same different. You can map $\triangle ABC$ to $\triangle XYZ$ by a **counter-clockwise rotation of 90° around the origin**. This is not a rigid motion that maps $\triangle ABC$ to $\triangle XYZ$, so the figures are not congruent. The coordinate notation for the rotation is $(x, y) \rightarrow (-y, x)$.

Do Your Turn 2 and 3 on pg. 898

Your Turn
Use the definition of congruence to decide whether the two figures are congruent. Explain your answer.

2. **You can map $ABCD$ to $WXYZ$ with a reflection across the x -axis, so the figures are congruent. The coordinate notation for the reflection is $(x, y) \rightarrow (x, -y)$.**

3. **You can map $\triangle JKL$ to $\triangle XYZ$ with a reflection across the y -axis, followed by a horizontal translation, so the figures are congruent. The coordinate notation for the reflection is $(x, y) \rightarrow (-x, y)$ and for the translation is $(x, y) \rightarrow (x - 6, y)$.**

Read pg. 899 A and do B

A $\triangle ABC \cong \triangle PQR$ Map $\triangle ABC$ to $\triangle PQR$ with a rotation of 180° around the origin, followed by a horizontal translation.
Rotation: $(x, y) \rightarrow (-x, -y)$
Translation: $(x, y) \rightarrow (x + 1, y)$

B $ABCD \cong JKLM$ Map $ABCD$ to $JKLM$ with a reflection across the y -axis followed by a translation.
Reflection: $(x, y) \rightarrow (-x, y)$
Translation: $(x, y) \rightarrow (x + 2, y - 10)$

Do Your Turn on pg. 899 (5 and 6)

Your Turn
The figures shown are congruent. Find a sequence of rigid motions that maps one figure to the other. Give coordinate notation for the transformations you use.

5. $JKLM \cong WXYZ$ **Reflect $JKLM$ across the x -axis: $(x, y) \rightarrow (x, -y)$. Then translate the image: $(x, y) \rightarrow (x - 4, y - 2)$.**

6. $ABCDE \cong PQRST$ **Reflect $ABCDE$ across the y -axis: $(x, y) \rightarrow (-x, y)$. Then translate the image: $(x, y) \rightarrow (x, y - 10)$.**

Homework

- pg. 901 – 902 (1 – 9)

- ***Do not need coordinate notation for rotations or reflections*****