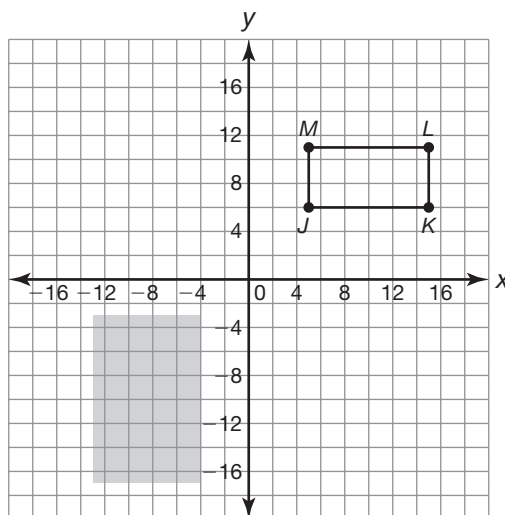


LESSON 7.1 Assignment

Name _____ Date _____

Slide, Flip, Turn: The Latest Dance Craze? Translating, Rotating, and Reflecting Geometric Figures

1. Transform rectangle $JKLM$ so it sits in the shaded rectangle in Quadrant III.

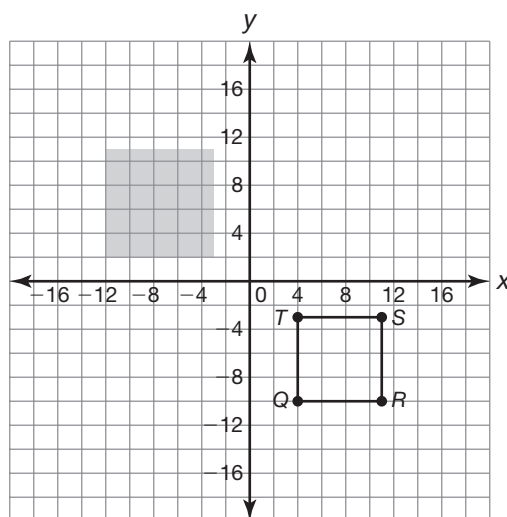


- a. How many different transformations will it take to place rectangle $JKLM$ in the shaded area in Quadrant III?
- b. Describe and perform a transformation to move rectangle $JKLM$ to Quadrant II. Identify the coordinates of the vertices of the transformed rectangle, $J'K'L'M'$. Explain how you determined your answer.

- c. Describe and perform the transformation that can be used to move rectangle $J'K'L'M'$ to Quadrant III. Identify the coordinates of the vertices of the transformed rectangle, $J''K''L''M''$. Explain how you determined your answer.

- d. Could a different transformation(s) be used to move rectangle $JKLM$ to Quadrant III? Explain your reasoning.

2. Consider figure $QRST$.



Ramona states that there are three ways to transform $QRST$ to place its image in the shaded area in Quadrant II.

- Translate $QRST$ vertically 13 units up, then horizontally 15 units to the left.
- Reflect $QRST$ over the x -axis then over the y -axis.
- Rotate $QRST$ 180° counterclockwise (or clockwise) about the origin.

Name _____ Date _____

- a. Without graphing, determine the coordinates of the vertices of the image for each of the transformations Ramona listed. Explain how you determined your answers.

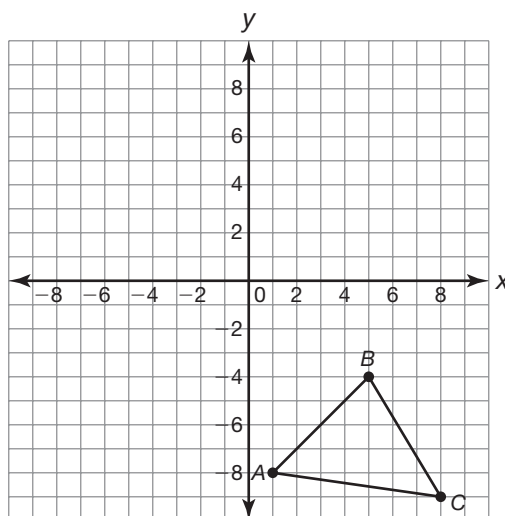
- b. Which transformation would you recommend that Ramona choose? Explain your reasoning.

- c. Perform the transformation you chose in part (b).

Name _____ Date _____

All the Same to You Congruent Triangles

1. Analyze triangle ABC .

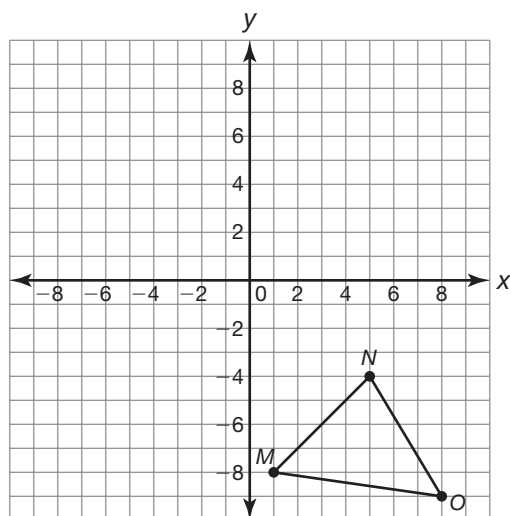


- Describe a transformation that can be performed on $\triangle ABC$ that will result in a triangle being created in Quadrant I.
- Will the transformation you described preserve the size and shape of the triangle?
Explain your reasoning.
- Perform the transformation and name the new triangle DEF .
- List the coordinates for the vertices of both triangles.
- Using the names of the vertices, write a triangle congruence statement for the triangles.

f. Using your congruence statement, identify the congruent angles.

g. Using your congruence statement, identify the congruent sides.

2. Analyze triangle MNO .



a. Describe a transformation that can be performed on $\triangle MNO$ that will result in a triangle being created in Quadrant III.

b. Will the transformation you described preserve the size and shape of the triangle?

c. Perform the transformation and name the new triangle PQR .

Name _____ Date _____

d. List the coordinates for the vertices of both triangles.

e. Using the names of the vertices, write a triangle congruence statement for the triangles.

f. Using your congruence statement, identify the congruent angles.

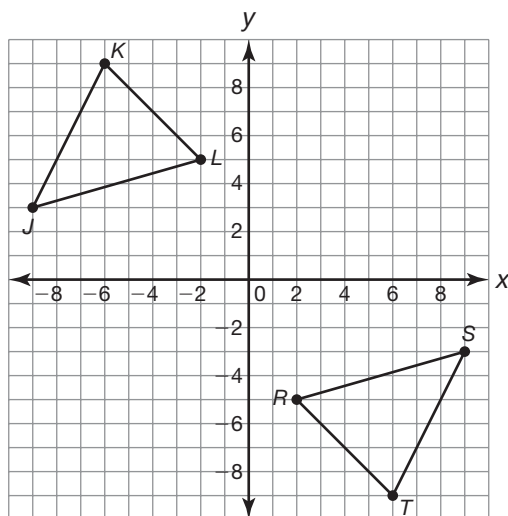
g. Using your congruence statement, identify the congruent sides.

LESSON 7.3 Assignment

Name _____ Date _____

Side-Side-Side Side-Side-Side Congruence Theorem

1. Analyze the triangles shown.



- a. Are the two triangles shown on the grid congruent? Show and explain how you determined your answer.

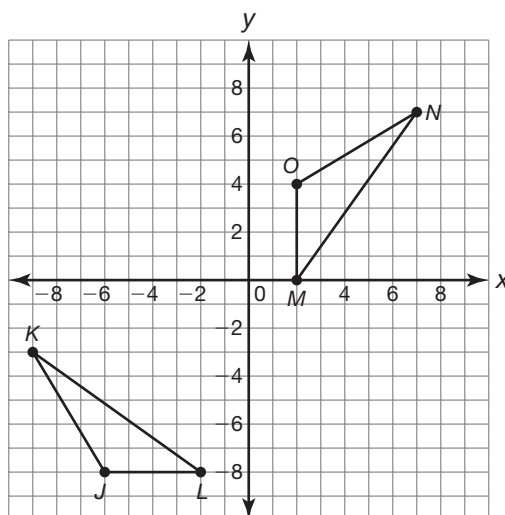
- b. Juan says the triangle congruency statement for these triangles should be $\triangle JKL \cong \triangle RST$.
Natsu says the triangle congruency statement for these triangles should be $\triangle JKL \cong \triangle SRT$.
Who is correct? Explain your reasoning.

LESSON 7.4 Assignment

Name _____ Date _____

Side-Angle-Side Side-Angle-Side Congruence Theorem

1. Analyze the triangles shown.



- a. Use the distance formula and a protractor to prove that the two triangles shown on the grid are congruent by SAS. Show your work.

- b.** Mark the triangles to show which sides and angles are congruent.

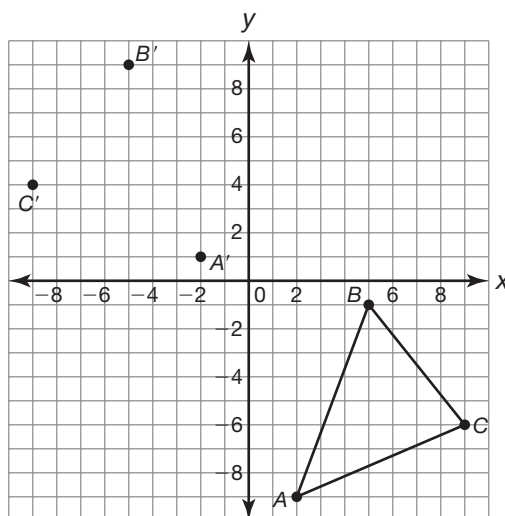
- c.** Write a congruency statement for the triangles.

Name _____ Date _____

You Shouldn't Make Assumptions

Angle-Side-Angle Congruence Theorem

- Emerson wants to translate $\triangle ABC$ and then reflect it over the y -axis to form a new triangle in Quadrant II. She uses what she knows about transformations to determine the vertices of $\triangle A'B'C'$ before performing the transformations.



- Briefly describe how Emerson can use the ASA Congruence Theorem to determine whether or not she transformed $\triangle ABC$, such that the image is congruent to the pre-image.
- Connect points A' , B' , and C' . Use a protractor to determine the measure of two corresponding angles in each triangle.

c. Calculate the length of the included side of $\triangle ABC$ and $\triangle A'B'C'$. Show your work.

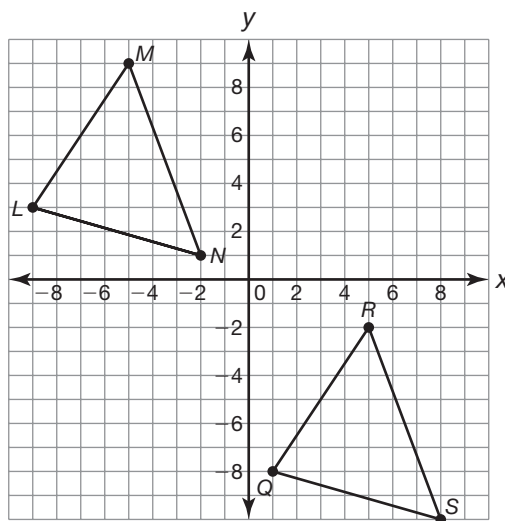
d. Did Emerson perform the transformations on $\triangle ABC$ so that the image is congruent to the pre-image? Explain your reasoning.

LESSON 7.6 Assignment

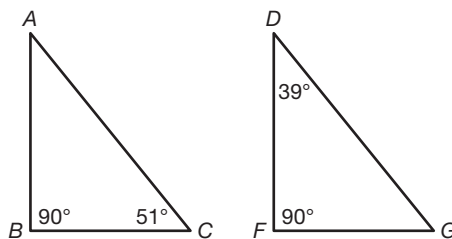
Name _____ Date _____

Ahhhhh . . . We're Sorry We Didn't Include You! Angle-Angle-Side Congruence Theorem

1. Describe and use AAS to prove that triangle LMN is congruent to triangle QRS .



2. Triangles ABC and DFG are given.



- Side BC of $\triangle ABC$ is congruent to side FG of $\triangle DFG$. Mark the triangles to show that these sides are congruent.
- Do you have enough information to determine whether $\triangle ABC$ is congruent to $\triangle DFG$? Explain your reasoning.
- Without using a protractor, calculate the measure of $\angle BAC$. Show your work. Write the measure on the triangle.
- Now, do you have enough information to determine that $\triangle ABC$ is congruent to $\triangle DFG$? Write congruence statements to justify your reasoning.

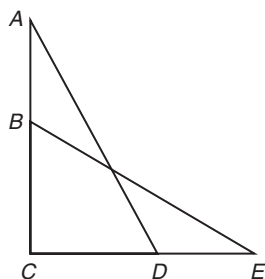
Name _____ Date _____

Congruent Triangles in Action

Using Congruent Triangles

1. Use triangle congruency proofs to prove the statement using the given information.

a.

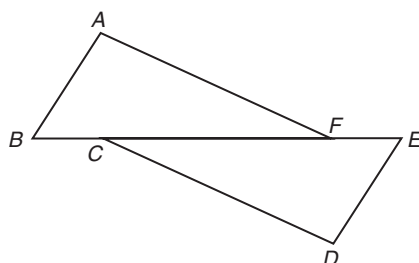


Given: $\angle A \cong \angle E$

$\overline{AB} \cong \overline{EC}$

Prove: $\overline{CB} \cong \overline{DC}$

b.

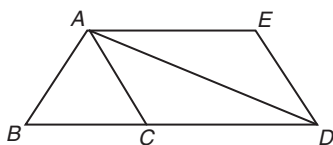


Given: $\overline{FE} \cong \overline{BC}$

$\overline{AF} \parallel \overline{CD}, \overline{AB} \parallel \overline{ED}$

Prove: $\triangle ABF \cong \triangle DEC$

c.



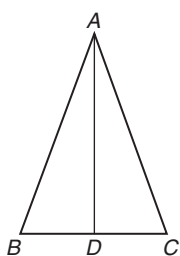
Given: $\triangle ABC$ is equilateral

$$\overline{AC} \parallel \overline{ED}$$

$$\overline{AB} \cong \overline{ED}$$

Prove: $\angle E \cong \angle ACD$

d.

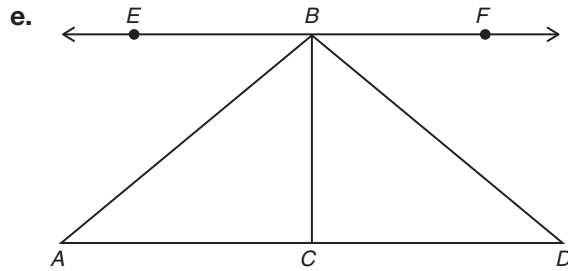


Given: \overline{AD} is a perpendicular bisector of \overline{BC}

$$\overline{AB} \cong \overline{AC}$$

Prove: $\triangle ABD \cong \triangle ACD$

Name _____ Date _____



Given: $\overleftrightarrow{EF} \parallel \overline{AD}$

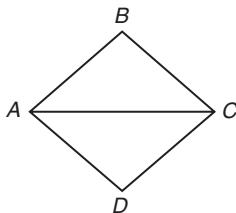
\overline{BC} is angle bisector of $\angle ABD$

\overline{BC} is the perpendicular bisector of \overleftrightarrow{EF}

Prove: $\triangle CAB \cong \triangle CDB$

2. Write the information needed in each situation to prove that the triangles are congruent, and state the postulate, or state that there is already enough information to prove the specified triangles congruent, and state the postulate.

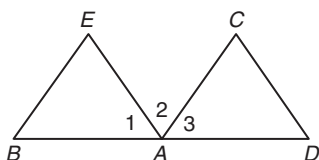
a.



Given: $\angle B \cong \angle D$

Prove: $\triangle ABC \cong \triangle ADC$

b.



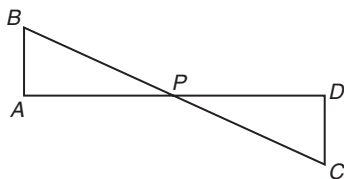
Given: $\angle BAC \cong \angle DAE$

$\overline{AE} \cong \overline{AC}$

A is the midpoint of \overline{BD}

Prove: $\triangle BEA \cong \triangle DCA$

c.



Given: $\angle A$ and $\angle D$ are right angles

Prove: $\triangle BAP \cong \triangle CDP$