

Geometry

Chapter 9
Section 9-5

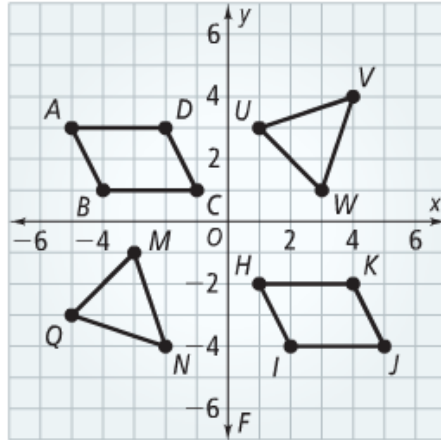
Identifying Transformations

Can you transform any of the shapes at right onto the outline of another?

ABCD to HIJK
QMN to UWV

Describe the transformation from QMN to WUV.

Glide Reflection
 $(R_{x\text{-axis}} \circ T_{\langle 6,0 \rangle})(QMN)$



Congruent Shapes

Take note

Key Concept Congruent Figures

Two figures are **congruent** if and only if there is a sequence of one or more rigid motions that maps one figure onto the other.

Because compositions of rigid motions take figures to congruent figures, they are also called **congruence transformations**.

List some other rules or theorems that we know that prove that certain shapes are congruent.

For all polygons: All sides and angles are congruent.

For triangles: AAS, ASA, HL, SAS, SSS

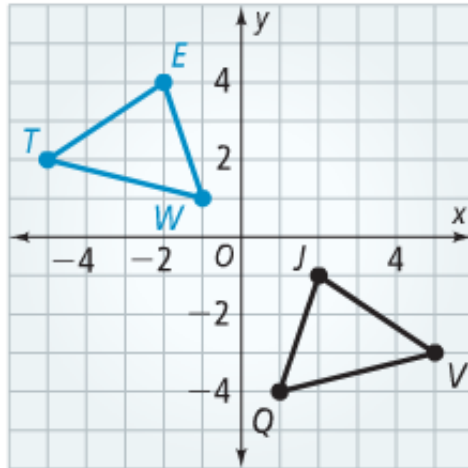
Proving Congruent Shapes

Can you show that
 $\triangle WET \cong \triangle QJV$?

Yes

Can you show that
 $\triangle EWT \cong \triangle QJV$?

No



Identifying a Congruence Transformation

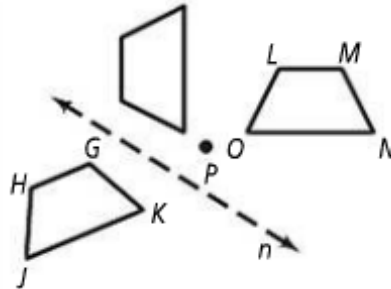
Which is the correct rule for the transformation shown?

$$(r_{(90, P)} \circ R_n)(LMNO) = GHJK$$

$$(R_n \circ r_{(270, P)})(LMNO) = HGKJ$$

$$(R_n \circ r_{(90, P)})(LMNO) = HGKJ$$

$$(R_n \circ r_{(90, P)})(LMNO) = GHJK$$



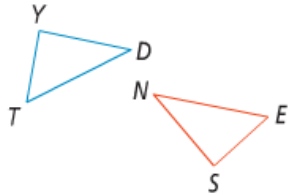
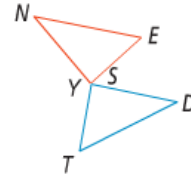
Using Congruence Transformations

Verify the SSS postulate.

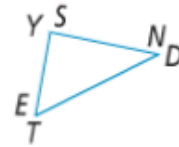
Given: $\overline{TD} \cong \overline{EN}$, $\overline{YT} \cong \overline{SE}$, $\overline{YD} \cong \overline{SN}$

Prove: $\triangle YDT \cong \triangle SNE$

Translate $\triangle SNE$
so S and Y are the
same point



Rotate $\triangle SNE$
around point S so
SN and YD are
concurrent



Homework

Pages 582 - 584
7- 19 odd, 22, 23, 24