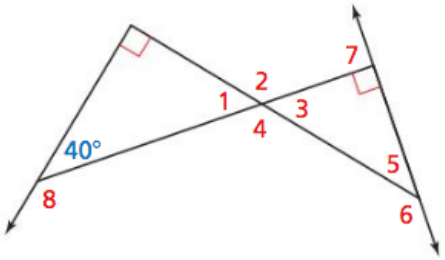
5.2 Congruent Polygons

Do Now: **In Exercises 29–36, find the measure of the numbered angle.**



29. $\angle 1$ **30.** $\angle 2$

31. $\angle 3$ **32.** $\angle 4$

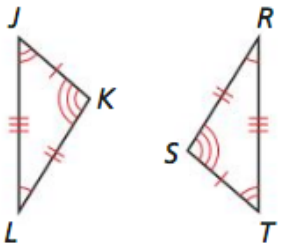
33. $\angle 5$ **34.** $\angle 6$

35. $\angle 7$ **36.** $\angle 8$

What does it mean to be corresponding?

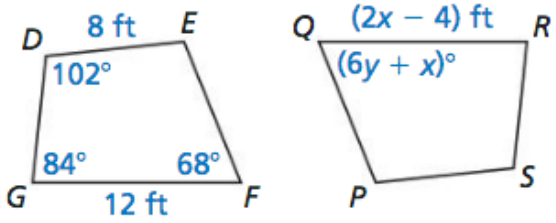
Example 1: Identifying Corresponding Parts

Write a congruence statement for the triangles.
Identify all pairs of congruent parts.



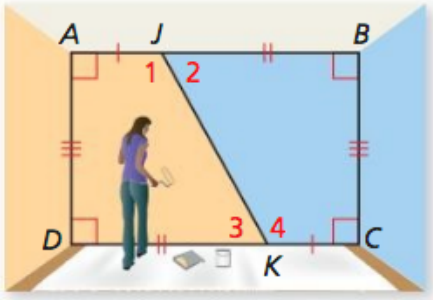
Example 2: Using properties of congruent figures.

In the diagram $DEFG \cong SPQR$. Determine the value of x and y



Example 3: Showing that figures are congruent

You divide the wall into orange and blue sections along JK. Will the sections of the wall be the same size? Explain.



Critical thinking:

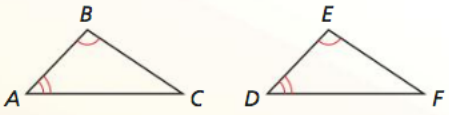
If you are given two separate triangles and all you know is that the two triangles have 2 pairs of angles that are congruent what else can you conclude?

Theorem

Theorem 5.4 Third Angles Theorem

If two angles of one triangle are congruent to two angles of another triangle, then the third angles are also congruent.

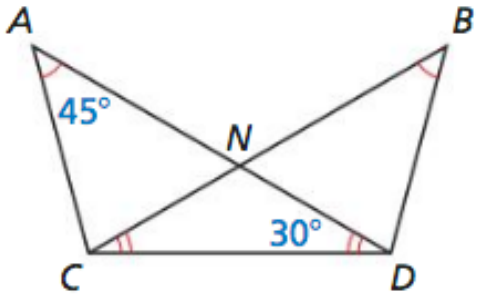
Proof Ex. 19, p. 244



If $\angle A \cong \angle D$ and $\angle B \cong \angle E$, then $\angle C \cong \angle F$.

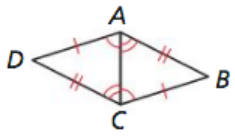
Example 4: Using the Third Angles Theorem

Find the measure of angle BDC



Example 5: Proving that Triangles are congruent

Use the information in the figure to prove that $\triangle ACD \cong \triangle CAB$.



SOLUTION

Classwork/Homework
3-9, 13, 14, 16, 22