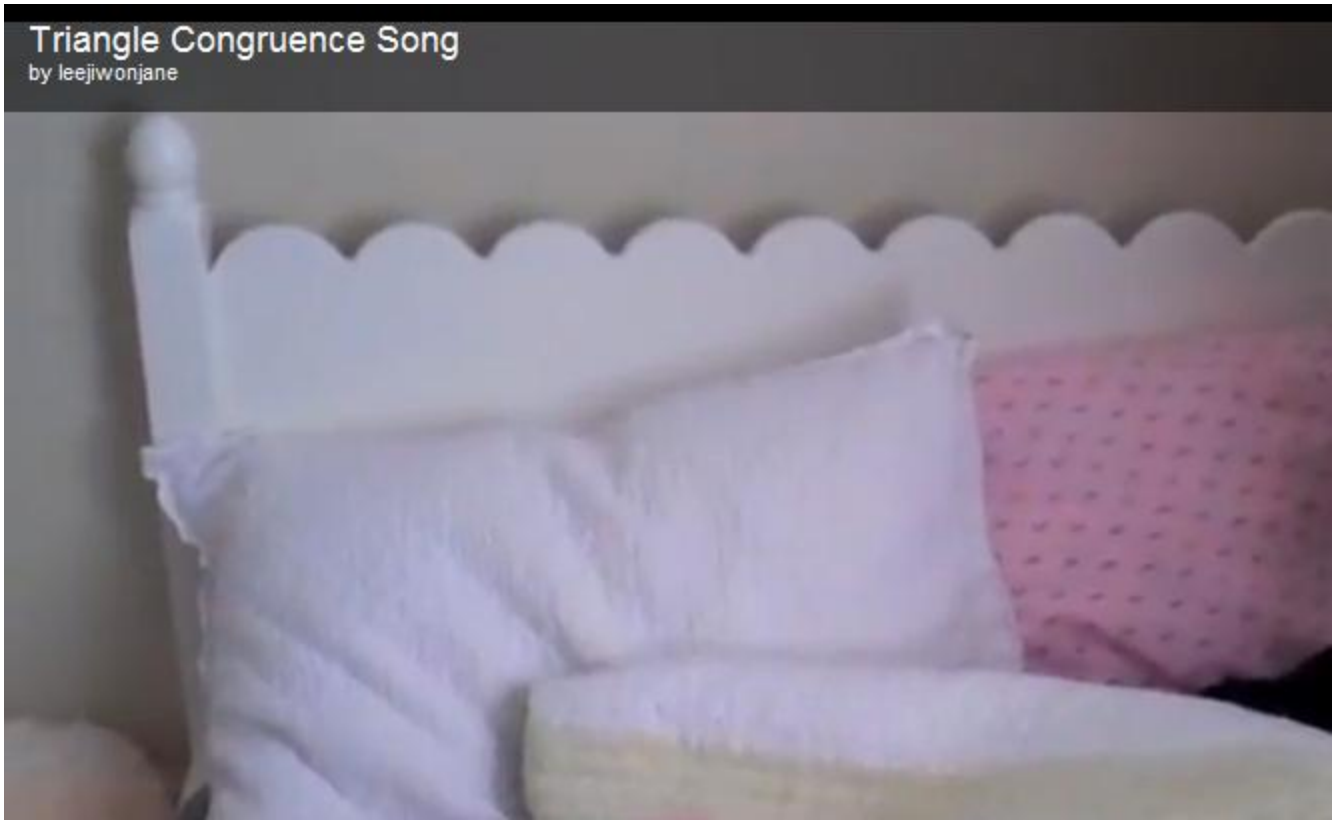
CHAPTER 5: CONGRUENT TRIANGLES

Section 5.1 Congruence and Triangles

Congruence Song



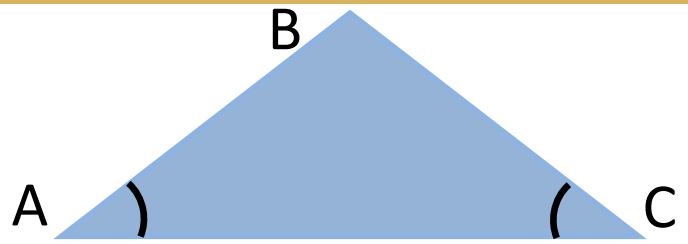
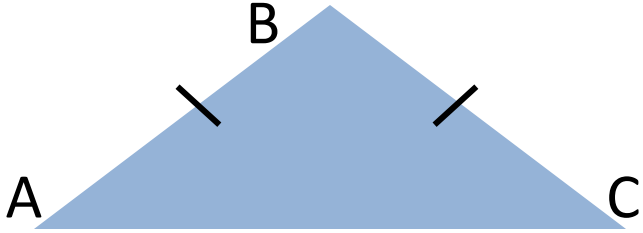
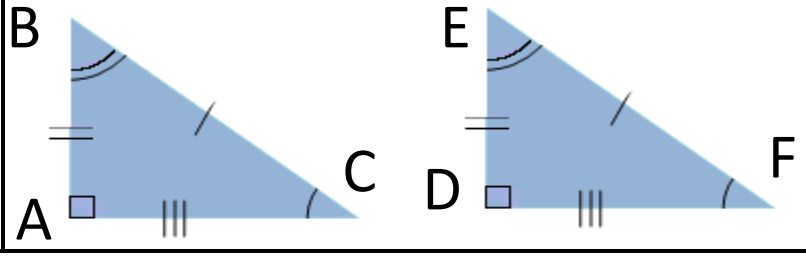
VOCABULARY AND NOTATION

Terms you need to know

Vocabulary

- Corresponding Parts
  - When two angles or two sides of a figure(s) have the same measure.
- Congruent
  - Two geometric figures have exactly the same size and shape.
    - All pairs of corresponding sides and angles are the same
    - Congruent parts of congruent triangles are congruent. (CPCTC)

Notation

	Symbol	Picture
Congruent Angles:	$\angle A \cong \angle C$	
Congruent Sides:	$\overline{AB} \cong \overline{BC}$	
Congruent Triangles:	$\Delta ABC \cong \Delta DEF$	

Writing a congruence statement

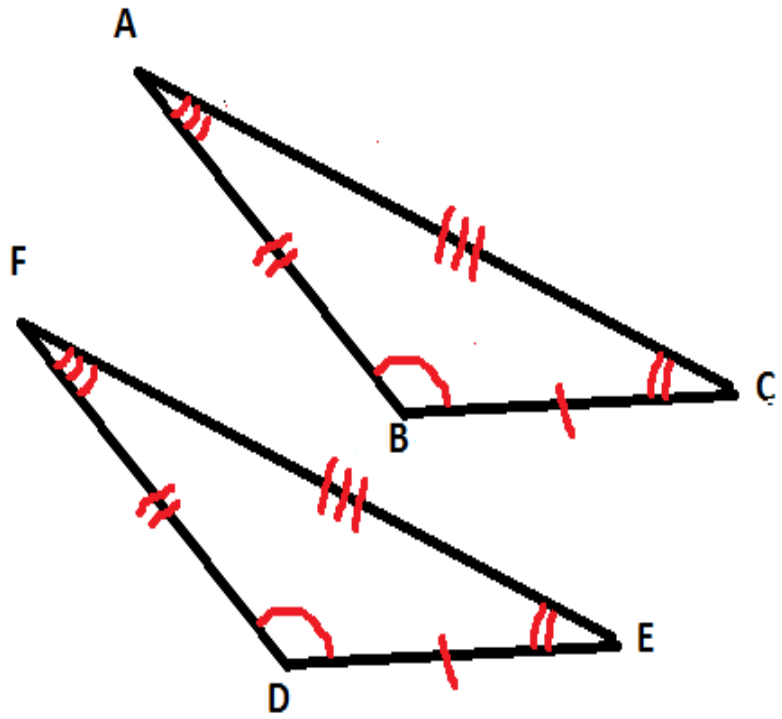
- Step1:

  Check that all corresponding parts are congruent.

- Step 2:

  List the letters in the triangle names so that the corresponding angles match.

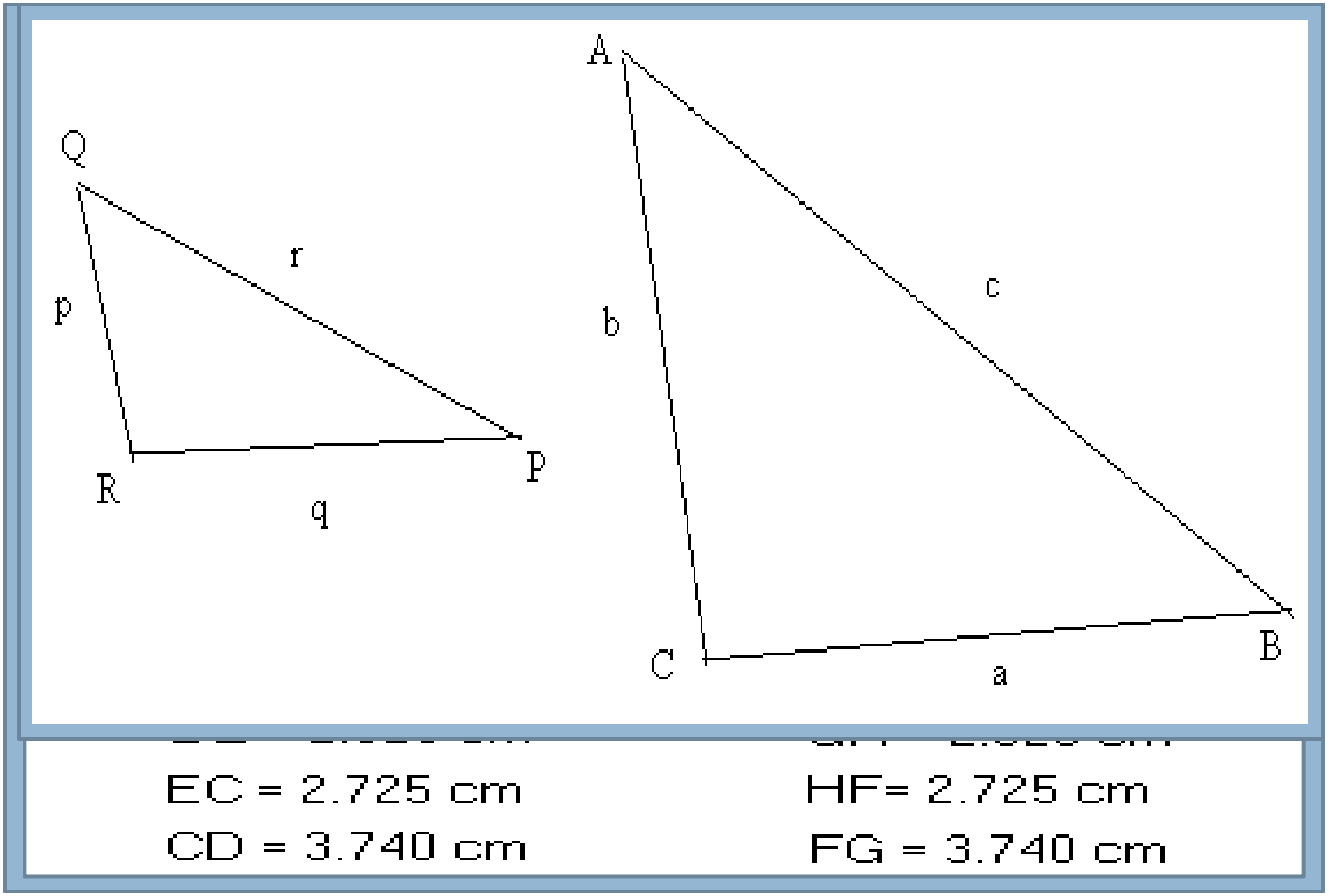
- ∠A≅∠F, ∠B≅∠D, ∠C≅∠E



Are they congruent?

Look for congruent sides and angles

Are they congruent?



Activity – Toe to Toe Geo

- Each person has one triangle.
- Mingle around the room while music plays.
- When the music stops, get toe to toe with the nearest person.
- Determine whether your triangles are congruent or not.
- Go to the side of the room that matches your answer.

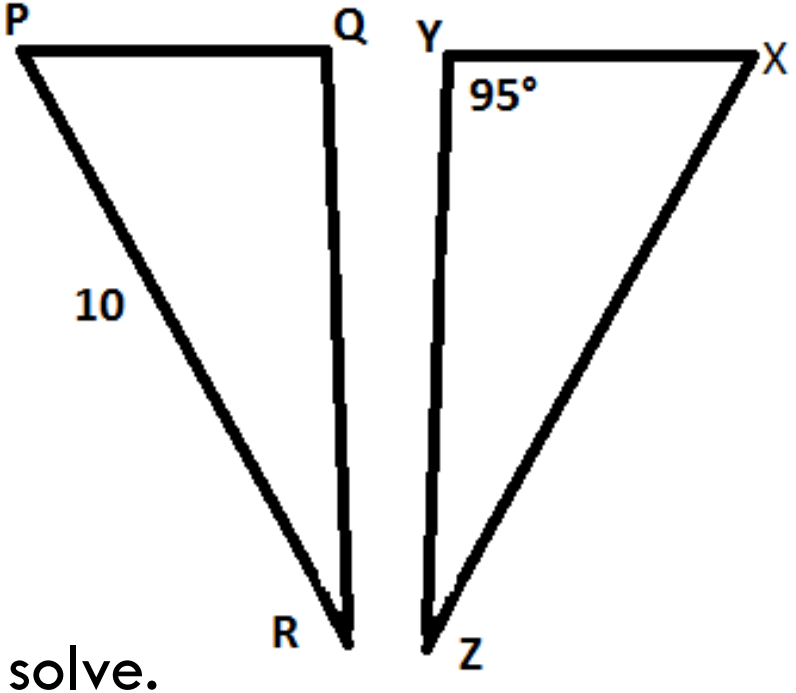
Application

Two examples

Example 1

- Find the length of $\overline{XZ}$.
- Find the $m\angle Q$.

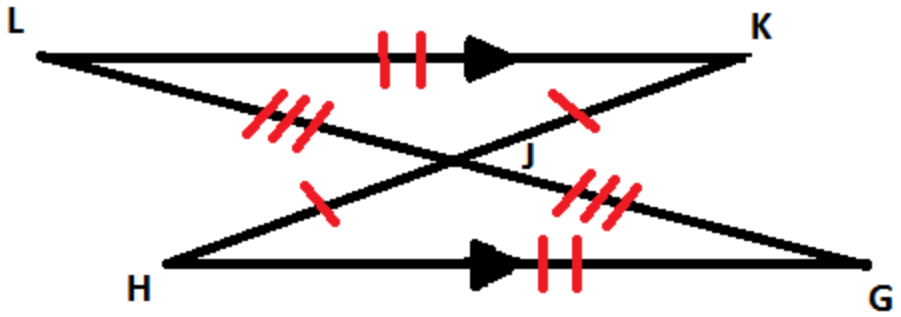
$\triangle PQR \cong \triangle XYZ$



  - Find the corresponding sides and angles.
    - $\overline{XZ} \cong \overline{PR}$
    - $\angle Q \cong \angle Y$
  - Use the above information to solve.
    - $\overline{PR}$ =10, so $\overline{XZ}$ =10
    - $\angle Y = 95°$, so $\angle Q = 95°$.

Example 2

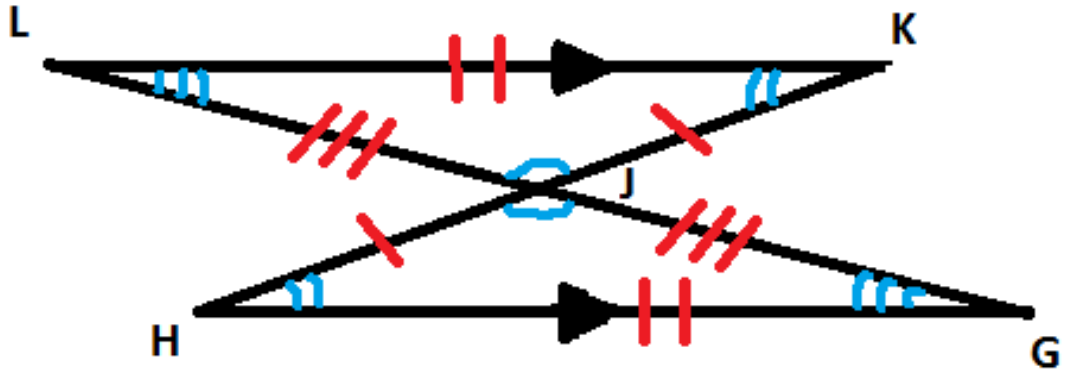
- In the figure, $\overline{HG} \parallel \overline{LK}$. Determine whether the triangles are congruent. If so, write a congruence statement.



- Recall, vertical angles are congruent.
- Recall, when parallel lines are cut by a transversal, the alternate interior angles are congruent.

Example 2: Continued

- $\overline{HJ} \cong \overline{KJ}, \overline{HG} \cong \overline{KL}, \overline{JG} \cong \overline{JL}$ Given
- $\angle HJK \cong \angle KJL$ Vertical Angles are congruent.
- $\angle H \cong \angle K$ Alternate Interior Angles Theorem
- $\angle G \cong \angle L$ Alternate Interior Angles Theorem
- Since all corresponding parts are congruent, the triangles are congruent.
- $\triangle HJG \cong \triangle KJL$



Assignment

Paragraph Outline

(5-8 sentences)

I. Topic sentence

II. 3-6 supporting statements

III. Conclusion

- Before you leave:
  - Write a paragraph explaining the key idea of the lesson today.
- Due tomorrow:
  - pp. 236-239 #'s: 16-50 evens

Sources

- Chandler, Laura. "Toe to Toe Geo." *Teaching Resources*. www.laurachandler.com. Web. 12 Apr. 2012.
- Larson, Ron, Laurie Boswell, and Lee Stiff. "Congruent Triangles." *Geometry: Concepts and Skills*. Evanston, IL: McDougal Littell, 2003. 233-39. Print
- Le, Chau, Jane Lee, and Jennifer Lee. "Triangle Congruence Song." *YouTube*. YouTube, 27 May 2011. Web. 12 Apr. 2012.