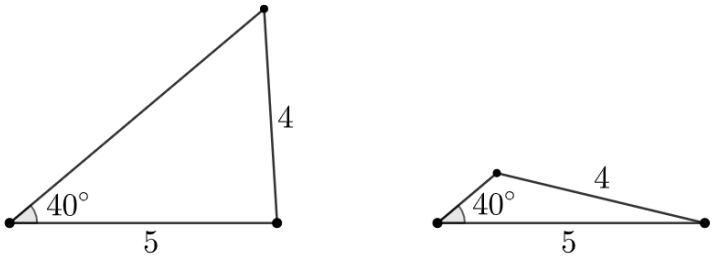
Name: _____

Lesson 2.08
SSA/HL Congruence

Geometry GT

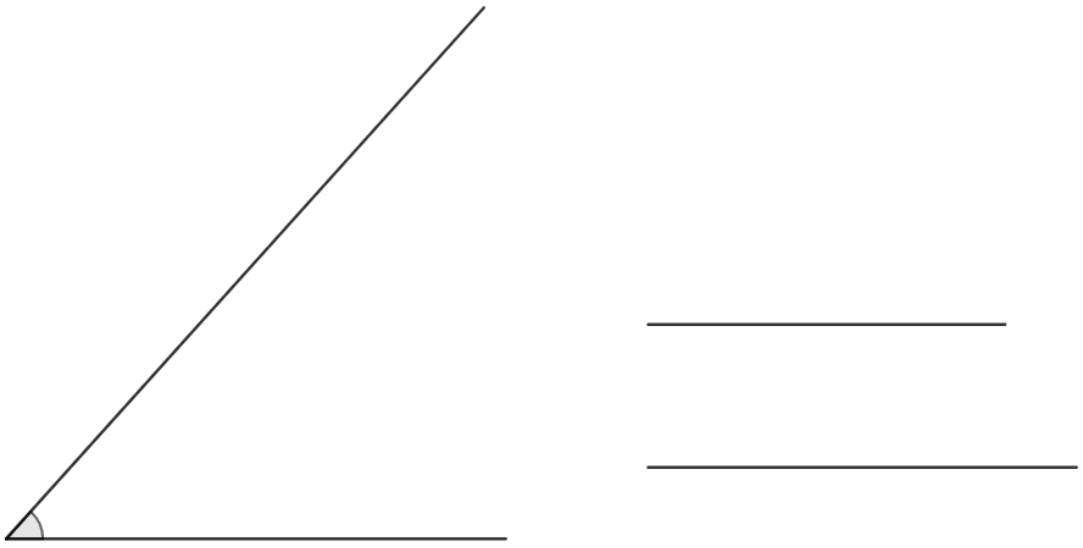
Analyze

What do you notice? What do you wonder?



Explore

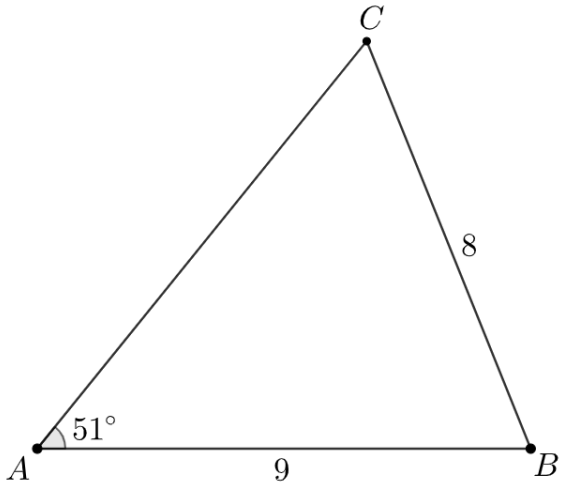
Copy the two segments below and use them to create a triangle using the angle below, and make sure the angle is *not* between the two given sides. Draw the triangle on patty paper, and try to make yours different from those around you.



Is knowing any two sides and an angle enough to guarantee that copies of a triangle will be congruent?

Discuss

Triangle ΔABC is shown below. Use a straightedge and compass to construct point D on $\overleftrightarrow{AC}$ such that $\overline{BD}$ has the same length as $\overline{BC}$.



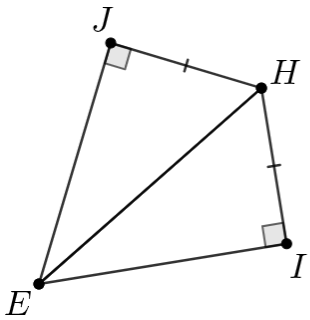
Now use the straightedge and compass to construct the midpoint of $\overline{CD}$, and label it M. Explain why ΔABM must be a right triangle.

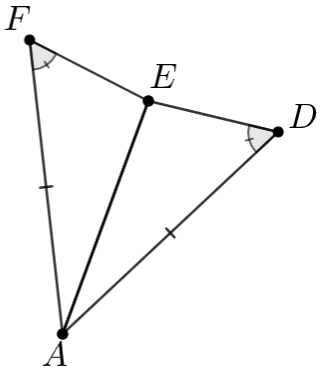
Theorem

Hypotenuse-Leg Triangle Congruence Theorem: in two right triangles, if two pairs of corresponding sides are congruent, and one of the pairs are the sides opposite the right angles, then the two triangles are congruent

Demonstrate

Determine if the following pairs of triangles must be congruent or if they might be congruent.





Practice

1. Which of the following criteria *always* proves triangles congruent? Select **all** that apply.

A. Three pairs of congruent angles

B. Three pairs of congruent sides

C. Two pairs of congruent sides and the pair of included angles

D. Two pairs of congruent sides and a pair of non-included angles

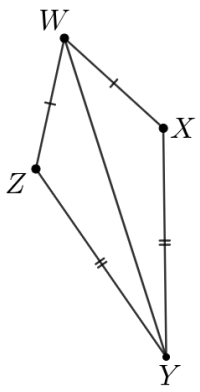
E. Two pairs of congruent angles and the pair of included sides

2. Here are some measurements for ΔABC and ΔXYZ:

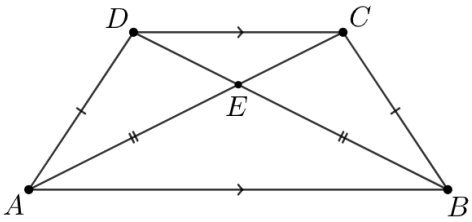
- $m\angle ABC = m\angle XYZ = 30°$
- $BC = YZ = 6$ units
- $CA = ZX = 4$ units

Construct two triangles with the given measurements that are *not* congruent.

3. Emma states that diagonal $\overline{WY}$ bisects $\angle ZWX$ and $\angle ZYX$.
Is she correct? Explain your reasoning.



4. Select **all** true statements based on the diagram.



A. $\angle CBE \cong \angle DAE$

B. $\angle CEB \cong \angle DEA$

C. $\overline{DA} \cong \overline{CB}$

D. $\overline{DC} \cong \overline{AB}$

E. $\overleftrightarrow{DC} \parallel \overleftrightarrow{AB}$

F. $\overleftrightarrow{DA} \parallel \overleftrightarrow{CB}$