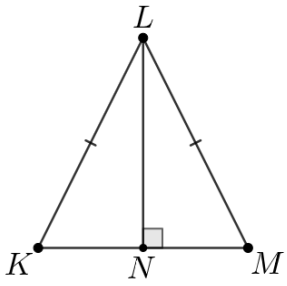
Name: _____

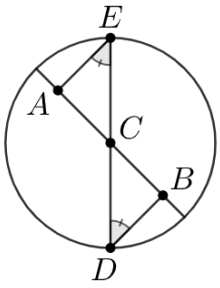
Lesson 3.06
SAS/SSS Similarity

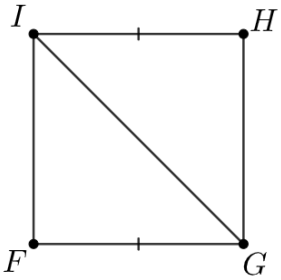
Geometry GT

Recall

Is there enough information to determine if the pairs of triangles are congruent? If so, what theorem(s) would you use? If not, what additional piece of information could you use?







Explore

Recall that there are five ways to prove triangles congruent.

Could you use Angle-Side-Angle and Angle-Angle-Side to prove triangles congruent? Why or why not?

What about Side-Angle-Side and Side-Side-Side? What could "side" mean in the context of similar triangles?

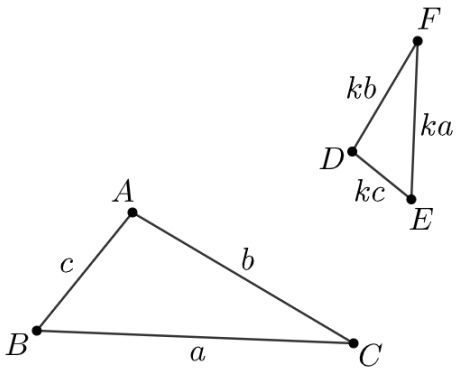
Sketch a diagram to illustrate Side-Angle-Side and find a sequence of rigid motions and dilations to take one to the other.

Theorem

Side-Angle-Side Triangle Similarity Theorem: in two triangles, if two pairs of corresponding sides are in the same proportion, and the corresponding pair of included angles are congruent, then the two triangles are similar

Discuss

Explain why these two triangles must be similar.

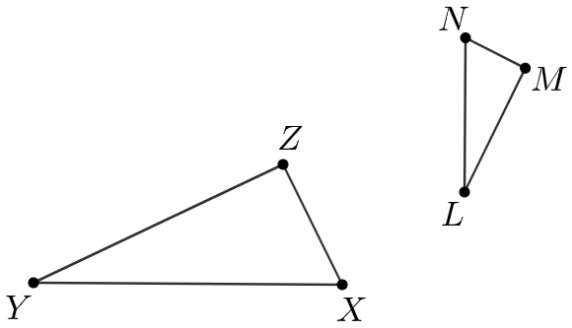


Theorem

Side-Side-Side Triangle Similarity Theorem: in two triangles, if all three pairs of corresponding sides are in the same proportion, then the two triangles are similar

Demonstrate

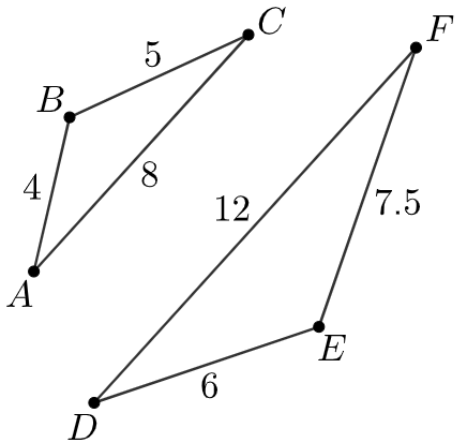
Invent measurements that would show $\Delta XYZ \sim \Delta NLM$ using the Side-Angle-Side Triangle Similarity Theorem.



Practice

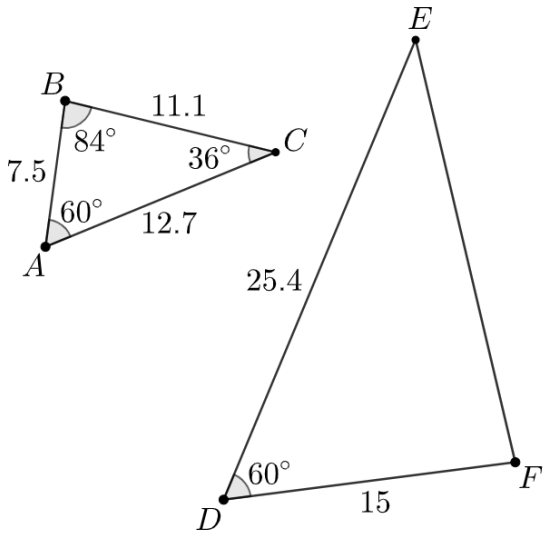
1. Here are triangles ΔABC and ΔDEF.

A. Explain how we know $\Delta ABC \sim \Delta DEF$.



B. What does that tell us about $\angle D$?

2. Here are two similar triangles, ΔABC and ΔDFE.

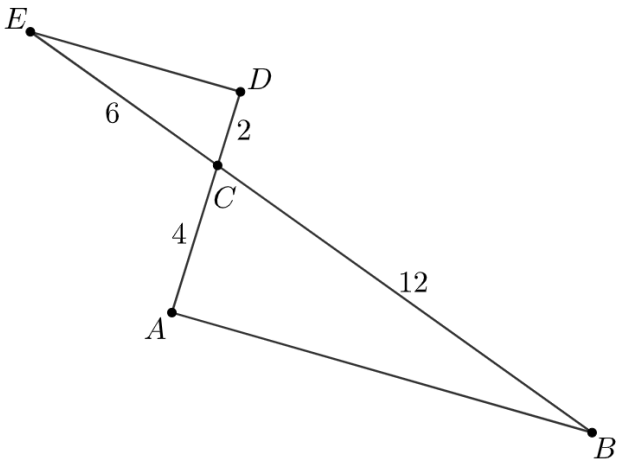


A. Find the length of $\overline{EF}$.

B. Find the measure of $\angle E$.

C. Find the measure of $\angle F$.

3. Prove $\Delta ABC \sim \Delta DEC$.



4. What is the length of $\overline{DF}$?