Congruence and Proportions in Similar Triangles - Lesson 8-4

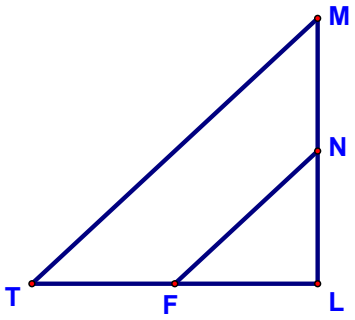
Here's the warmup!

Given: N is the midpoint of $\overline{ML}$

F is the midpoint of $\overline{TL}$

Prove: $\triangle NFL \sim \triangle MTL$

Prepare to discuss two possible logical solutions!!



Today, we're going to apply the definition of similar polygons to solve some interesting problems...for instance, let's start with a "shadow" problem:

If you know two triangles are similar, you can use the definition of similarity to prove:

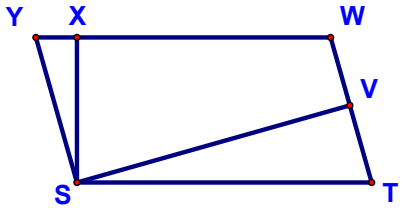
1. **Corresponding sides of the triangles are proportional, and**
2. **Corresponding angles of the triangles are congruent.**

e.g., If the tree's shadow is 50' long and the man's shadow is 10' long, how tall is the tree if the man is 6' tall?

Now, let's do an example proof, which shows how you can use the Means-Extremes Products Theorem to prove a relationship between the segments shown:

Given: YSTW is a parallelogram
$\overline{SX} \perp \overline{YW}$
$\overline{SV} \perp \overline{WT}$

Prove: $SX \cdot YW = SV \cdot WT$



Statements	Reasons