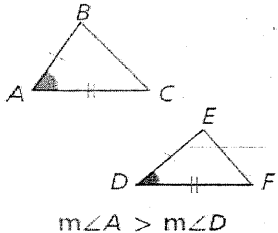
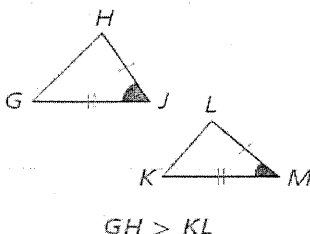
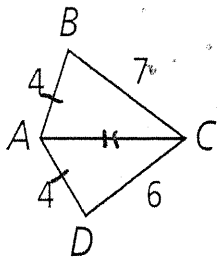


Theorems Inequalities in Two Triangles		
THEOREM	HYPOTHESIS	CONCLUSION
<p>5-6-1 Hinge Theorem If two sides of one triangle are congruent to two sides of another triangle and the included angles are not congruent, then the longer third side is across from the larger included angle.</p>	 <p>$m\angle A > m\angle D$</p>	<p>$BC > EF$</p>
<p>5-6-2 Converse of the Hinge Theorem If two sides of one triangle are congruent to two sides of another triangle and the third sides are not congruent, then the larger included angle is across from the longer third side.</p>	 <p>$GH > KL$</p>	<p>$m\angle J > m\angle M$</p>

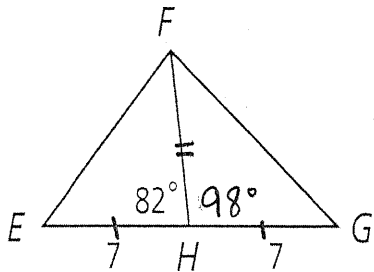
Example 1: Compare $m\angle BAC$ and $m\angle DAC$.

$m\angle BAC > m\angle DAC$



$BA = DA$
 $AC = AC$
 $BC > DC$

Example 2: Compare EF and FG .



$FH = FH$
 $EH = HG$
 $EF < FG$ ($m\angle EHF < m\angle GHF$)

Example 3: Find the range of values for k .

$$5k - 12 < 38$$

$$5k < 50$$

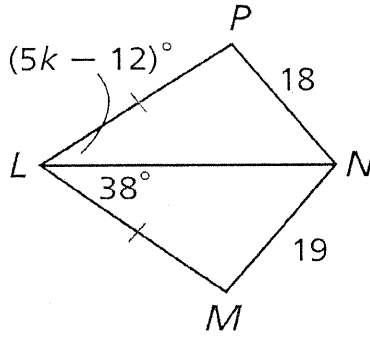
$$k < 10$$

$$5k - 12 > 0$$

$$5k > 12$$

$$k > 2.4$$

↗ can't be negative!
negative!

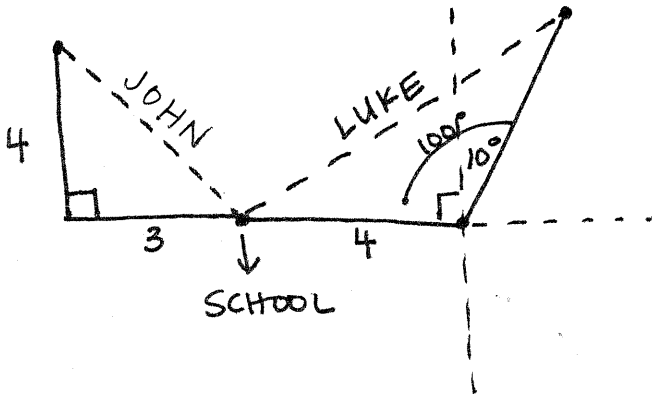


$$2.4 < k < 10$$

Example 4:

John and Luke leave school at the same time. John rides his bike 3 blocks west and then 4 blocks north. Luke rides 4 blocks east and then 3 blocks at a bearing of $N 10^\circ E$. Who is farther from school? Explain.

↪ 10° East of North



LUKE is farther from school!