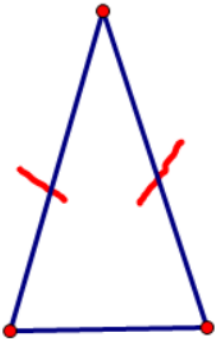
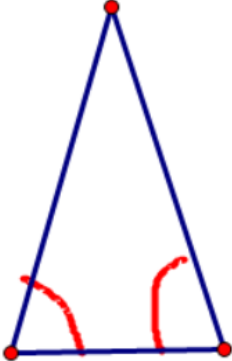
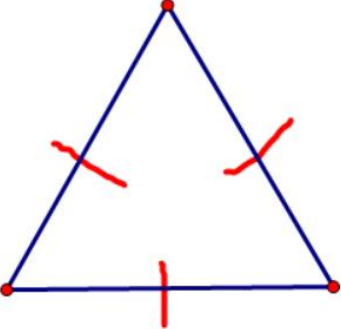
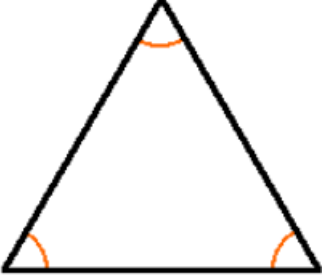


5.4 More Notes with 6.5 Notes (continued...)

In 5.4, we talked about how the sides and the angles of an **ISOSCELES** triangle are related (mark the pictures in the theorems below):

<p>Theorem 5.6 – Base Angles Theorem</p> <p>If two sides of a triangle are congruent, then the angles opposite them are congruent.</p>  <p>A blue triangle with two sides marked with red tick marks to indicate they are congruent. The base is the bottom side.</p>	<p>Theorem 5.7 – Converse of the Base Angles Theorem</p> <p>If two angles of a triangle are congruent, then the sides opposite them are congruent.</p>  <p>A blue triangle with two base angles marked with red arcs to indicate they are congruent. The top side is the base.</p>
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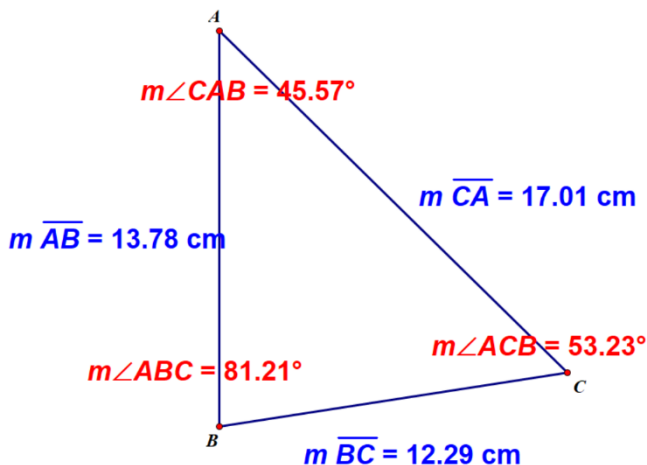
We also talked about how the sides and angles of an **EQUILATERAL** triangle are related (mark the pictures of the corollaries below):

<p>Corollary 5.2 – Corollary to the Base Angles Thm.</p> <p>If a triangle is equilateral, then it is equiangular.</p>  <p>A blue triangle with all three sides marked with red tick marks to indicate they are congruent.</p>	<p>Corollary 5.3 – Corollary to the Converse of the Base Angles Theorem</p> <p>If a triangle is equiangular, then it is equilateral.</p>  <p>A black triangle with all three angles marked with orange arcs to indicate they are congruent.</p>
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But what if the triangle is **SCALENE**? Is there a relationship between the sides and the angles of a scalene triangle?

Excerpt from Geometer-SketchPad →:

In a scalene triangle,
the largest side is opposite the _____ angle,
the medium side is opposite the _____ angle
and the smallest side is opposite the _____ angle.



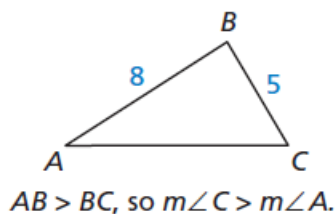
This concept is summarized in Theorems 6.9 & 6.10:

THEOREMS

6.9 Triangle Longer Side Theorem

If one side of a triangle is longer than another side, then the angle opposite the longer side is larger than the angle opposite the shorter side.

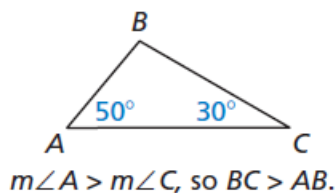
> *Prove this Theorem* Exercise 41, page 543



6.10 Triangle Larger Angle Theorem

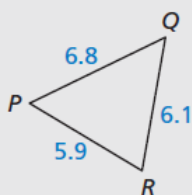
If one angle of a triangle is larger than another angle, then the side opposite the larger angle is longer than the side opposite the smaller angle.

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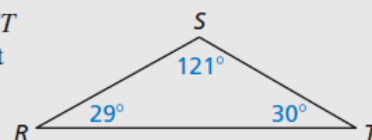


Let's do some examples from p. 537 and others:

4. List the angles of $\triangle PQR$ in order from smallest to largest.



5. List the sides of $\triangle RST$ in order from shortest to longest.



6. Given triangle ABC with $m\angle A = 40^\circ$ and $m\angle B = 80^\circ$, order the sides from smallest to largest (hint – make a sketch).