

5.3 Inequalities and Triangles

Theorems

- **Exterior Angle Inequality Thm-** if an \angle is an exterior \angle , it is larger than either of its two remote interior \angle 's.

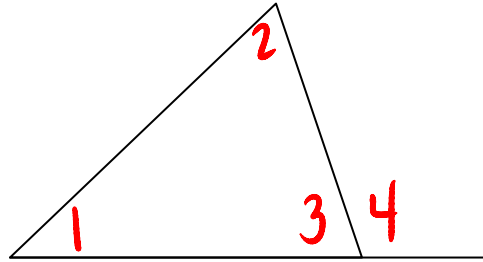
Ex. interior \angle 's.

Which angles are greater than $\angle 2$?

$\angle 4$

Which angles are less than $\angle 4$?

$\angle 1, \angle 2$!

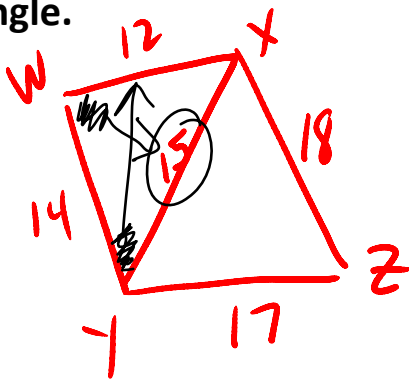


*greater than: look for an exterior angle

*less than: look for a remote interior angle

- If one side of \triangle is longer than another side, then the angle opposite the longer side has a greater measure than the shorter side's angle.

Ex.



$$\angle WXY > \angle XYW$$

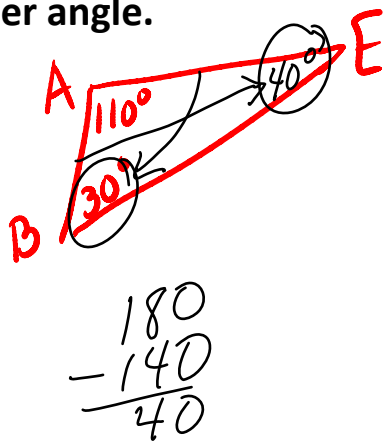
$$\angle XZY < \angle XYZ$$

$$(\angle WYX) < (\angle XWY)$$

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

Ex.

$$\begin{array}{r} 110 \\ + 30 \\ \hline 140 \end{array}$$



$$AE < EB$$

$$AE < AB$$

$$\begin{array}{r} 180 \\ - 140 \\ \hline 40 \end{array}$$