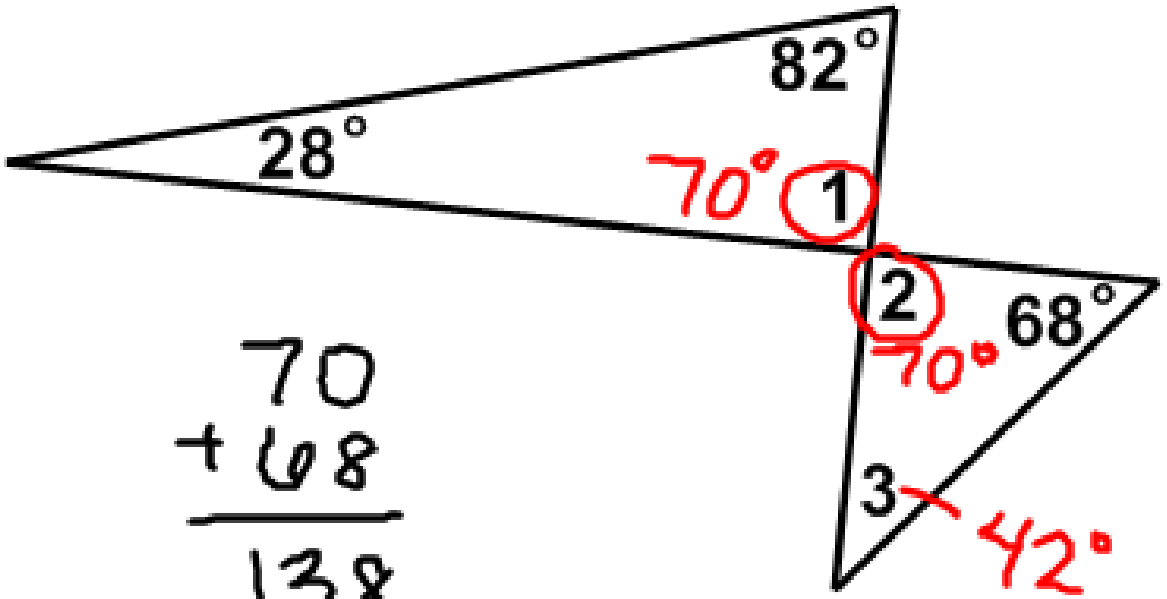
4 - 2
Angles of Triangles

Theorem 4.1 (Angle Sum Theorem)

The sum of the measures of the angles of a triangle is 180°.

Find the missing angle measures.

Ex:

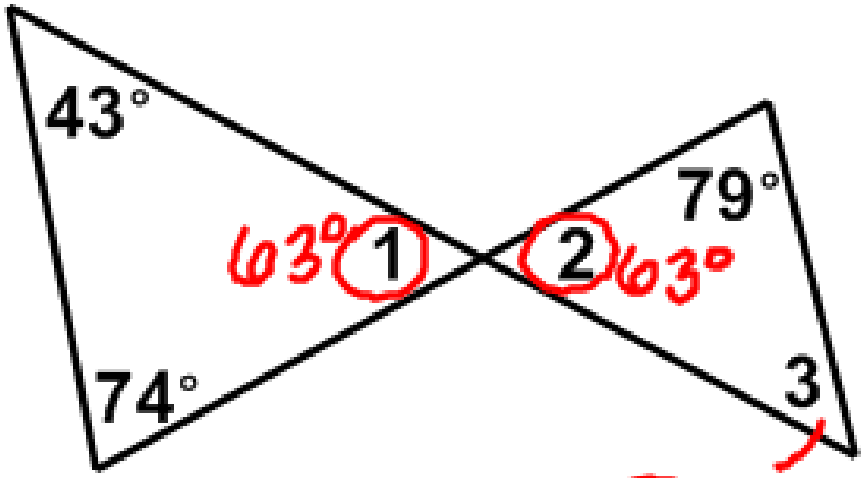


$$\begin{array}{r} {\scriptstyle 1}\\ 28\\ +\,82\\ \hline 110 \end{array}$$

$$\begin{array}{r} 70\\ +\,68\\ \hline 138 \end{array}$$

Find the missing angle measures.

Ex:



$$\begin{array}{r} 43 \\ +\,74 \\ \hline 117 \end{array}$$

$$\begin{array}{r} {}^{1}79 \\ +\,63 \\ \hline 142 \end{array}$$

Theorem 4.2 (Third Angle Theorem)

If two angles of one triangle are congruent to two angles of a second triangle, then the third angles of the triangles are congruent.

exterior angle: formed by one side of a triangle and the extension of another side

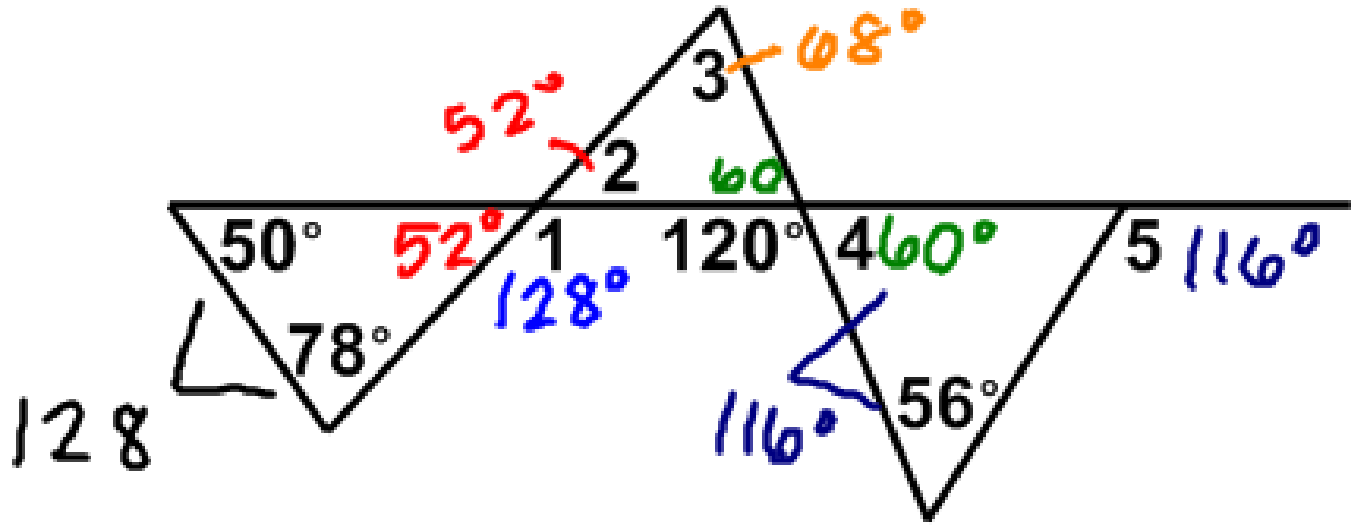
remote interior angles: the two interior angles NOT adjacent to the given exterior angle

Theorem 4.3 (Exterior Angle Theorem)

The measure of an exterior angle of a triangle is equal to the sum of the measures of the two remote interior angles.

$m\angle 1 = m\angle 2 + m\angle 4$

Ex: Find the missing angle measures.



m∠1 = 128°

m∠2 = 52°

m∠3 = 68°

m∠4 = 60°

m∠5 = 116°

Homework:

p.189 #11 - 27