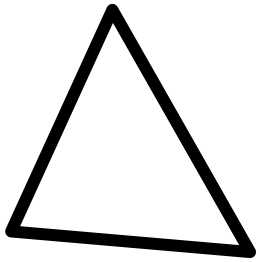
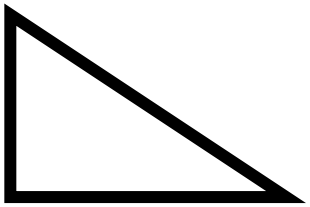
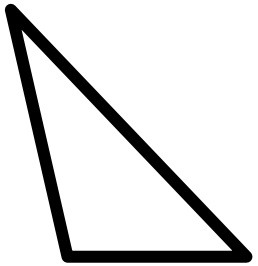
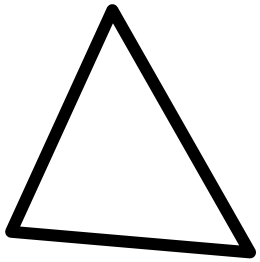
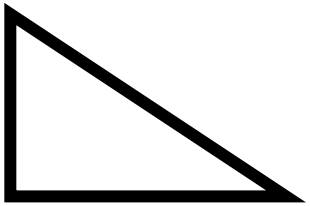
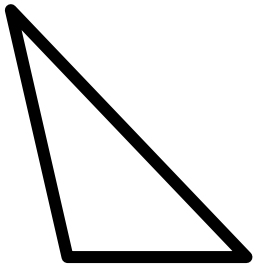
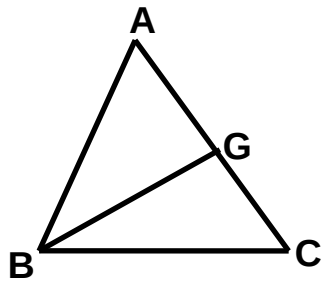
TOPIC 5-5: Special Segments Continued (Watch Video)

Segment Name	Definition	ACUTE	RIGHT	OBTUSE
A Angle Bisector	**A segment from the vertex of the triangle - splits this vertex angle into two congruent angles.**			
P Perpendicular Bisector	**A segment perpendicular t o a side and through the midpoint of that same side. This segment does not have to go through the vertex of the opposite side.**			

EXAMPLE 1

$\overline{BG}$ is an angle bisector.
Find ∠ABC if ∠ABG = 4x + 10, and
∠CBG = 6x + 4



x= _____

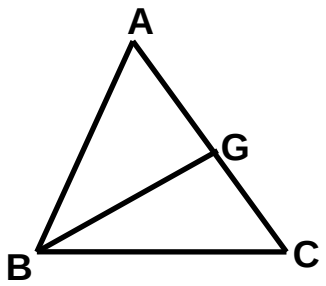
∠ABG= _____

∠ABC= _____

EXAMPLE 2

Given that BG is a perpendicular bisector, AG= 2x+12, and GC= 4x+6, find the following:

∠ABG= _____



AG= _____

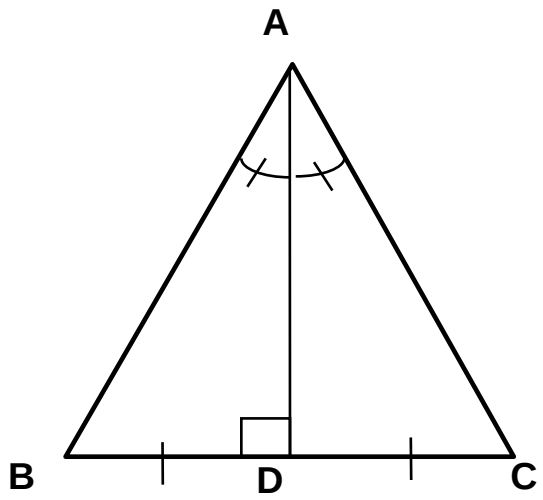
AC= _____

An isosceles triangle is a special case. **In the picture below, ΔABC is isosceles with base $\overline{BC}$. $\overline{AD}$ is an angle bisector, altitude, median, and perpendicular bisector.**

m∠_____ = m∠_____

_____ ⊥ _____

_____ ≅ _____

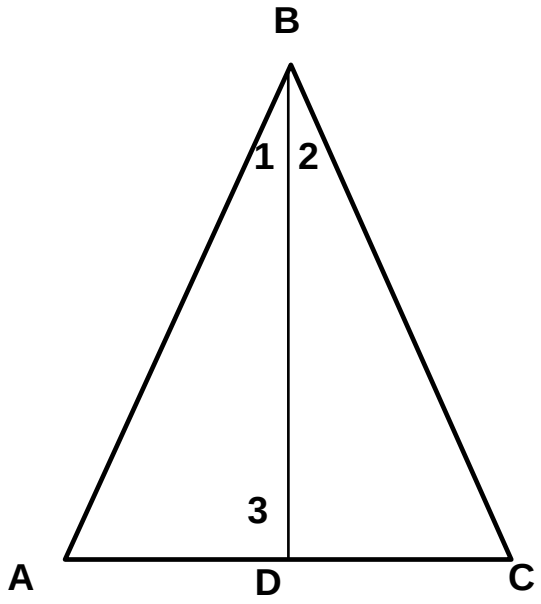


(ISOSCELES TRIANGLES: As long as a special segment is drawn from the vertex angle, it serves as the 3 other special segments as well.)

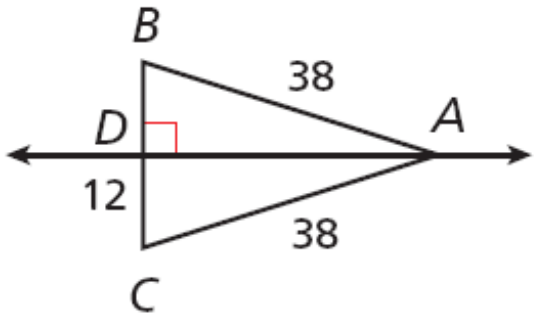
EXAMPLE 3 In isosceles ΔABC below, $\overline{BD}$ is an angle bisector coming from the vertex $\angle B$. Find the values of 'x', 'y', and 'z' if $m\angle 1 = (6x + 7)°$, $m\angle 2 = (3x + 16)°$, $m\angle 3 = (3y - 3)°$, $AD = 2z + 1$, and $DC = 5z - 8$. Then find $m\angle 1$ and AC.

$m\angle 1 =$ _____

$AC =$ _____

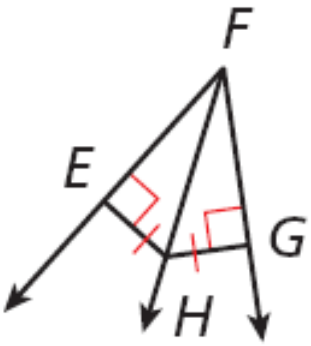


EXAMPLE 4 **Find BC.**

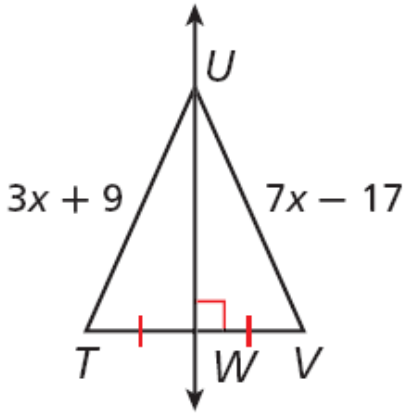


EXAMPLE 5 **Find m∠*EFH*,**

given that m∠*EFG* = 50°



EXAMPLE 6 **Find the measure of *TU*.**



EXAMPLE 7 **Find m∠*MKL*.**