Name _____**Answers**_____

Alg-Geo Honors

Ch 5.   Extra Practice Problems

Complete the following problems showing all work on separate paper:

1. $\triangle ABC$ is isosceles with vertex angle A and angle bisector $\overline{AD}$. If $m\angle BAD$ is 5x + 1, BD = 3x -4,

$m\angle ADC$ = 8x+8z-6, $m\angle DAC$ = 16y - 1, and DC = 8y - 2. Find the value of x, y and z.

$$x=6, y=2, z=6 \quad \text{(hint: use systems of equations)}$$

2. List the sides of $\triangle EFG$ in order from least to greatest given $m\angle E$ = 17x - 8, $m\angle F$ = 11x + 6

and $m\angle G$ = 14x - 10.   Least $\rightarrow$ Greatest: $\overline{EF}, \overline{EG}, \overline{FG}$

3. In $\triangle ABC$, $\overline{AD}$ is an altitude. If AC = 2x - 5, DC = x - 1, and AD = x + 2, find x.

$$x = 10 \quad \text{(hint: use Pythagorean Thm)}$$

4. Is it possible to have a triangle with the following side lengths? $(\sqrt{22}, \sqrt{31}, \sqrt{105})$

Justify your answer.

Yes - Give proof!