NAME: _____ Date _____ Pd _____

Honors Geometry – 6.5 TRIANGLE INEQUALITY DAY ONE CYU

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Triangle or not a triangle	1a, 1d, 1f	1b, 1c, 1f	
Third side inequality	2a, 2c	2b	
Determining shortest & longest sides		4, 5	3
Determining smallest & largest angles		4, 5	
Side & Angle inequality comparison		6, 7	

1. Determine whether it is possible to form a triangle with the given side lengths. Show work for full credit.

    a. 5, 12, 8

    b. $\dfrac{1}{2}, \dfrac{7}{8}, \dfrac{1}{4}$

    c. $\dfrac{1}{6}, \dfrac{5}{12}, \dfrac{1}{3}$

    d. 4, 6, 2

    e. $\dfrac{3}{7}, \dfrac{5}{14}, 1$

    f. 8, 7, 5

2. The measures of two sides of a triangle are given. Between what two numbers must the third side fall? Write an inequality to show the reasonable range for the side lengths of your triangle.

    a. 4 and 13

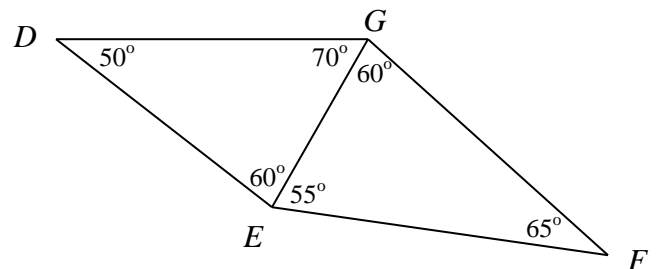   b. $\dfrac{1}{6}$ and $\dfrac{5}{9}$

    c. 2 and 28

3. Refer to the figure at the right.

    a. Name the longest side in ΔDEG.

    b. Name the shortest side in ΔGEF.
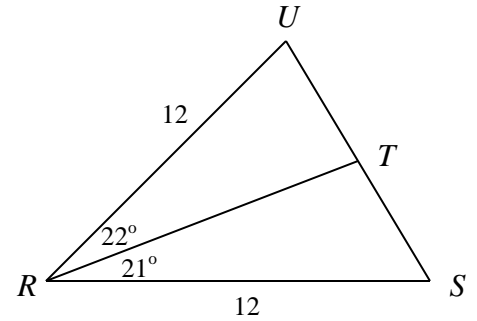
    c. Name the shortest side of the figure.

4. List the angles of $\triangle KLM$ in order from least to greatest if $KL = x - 4$, $LM = x + 4$, $KM = 2x - 1$ and the perimeter of $\triangle KLM$ is 27.

5. List the sides of $\triangle KLM$ in order from least to greatest if $m\angle K = (3x - 2)^\circ$, $m\angle L = (4x + 14)^\circ$, $m\angle M = 7x^\circ$.

6. Write an inequality relating the given pair of segments or angle measures. Give the reason for your conclusion.
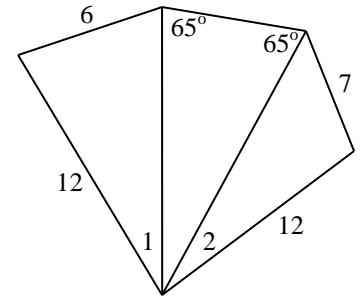
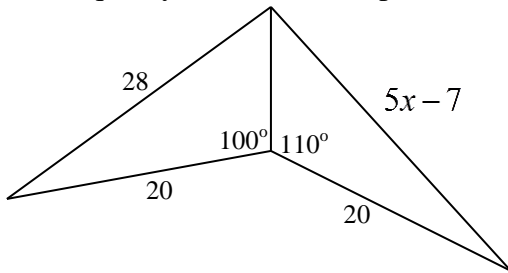   a. $\overline{UT}$ _____ $\overline{ST}$ $(<,>,=)$.

   Reason:
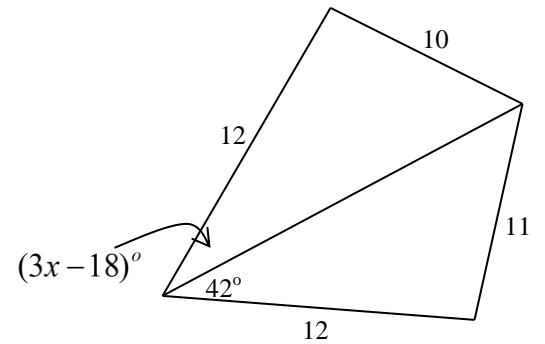
   b. $m\angle 1$ _____ $m\angle 2$ $(<,>,=)$.

   Reason:

7. Write an inequality to describe the possible values of x.

   a.

   b.