

Name: \_\_\_\_\_

AK

Period: \_\_\_\_\_

### 6.5 Practice Problems – Inequalities in Triangles

Can the following measures be the sides of a triangle?

1) 7, 8, 15

No

2) .5, .6, 1.09

Yes

Find the range of possible side lengths for the third side of a triangle given two side lengths.

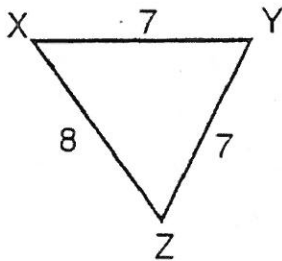
3) 13, 20

$$7 < X < 33$$

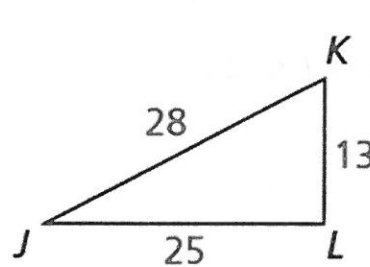
4) 4.2, 4.2

$$0 < X < 8.4$$

5) Order the angle measures from largest to smallest.

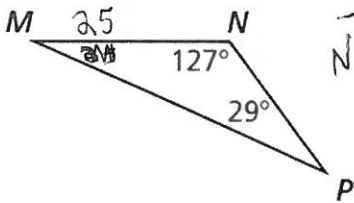


$$X = Z < Y$$

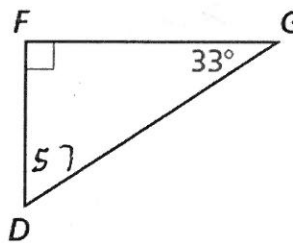


$$J < \overset{K}{\cancel{L}} < L$$

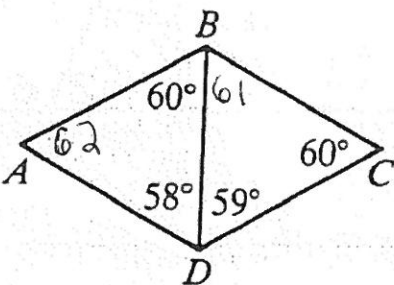
6) Order the side lengths from longest to shortest.



$$\overline{NP} < \overline{MN} < \overline{MP}$$

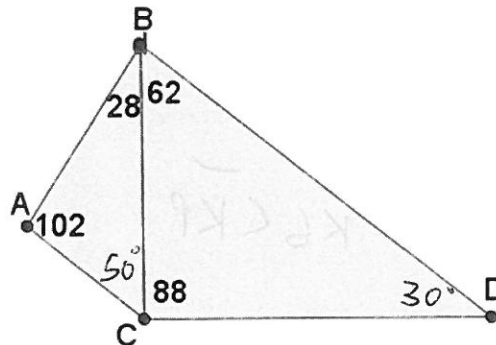


$$\overline{FD} < \overline{FG} < \overline{GD}$$



$$AB < AD < \cancel{BD} < DC$$

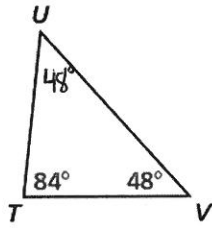
$$\& \ B < BD$$



$$AC < AB < BC < CD < BD$$

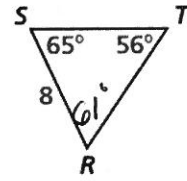
7) **PROBLEM SOLVING** Which statement about  $\triangle TUV$  is false?

- (A)  $UV > TU$   $\checkmark$
- (B)  $UV + TV > TU$   $\checkmark$
- (C)  $UV < TV$   $\otimes$
- (D)  $\triangle TUV$  is isosceles.



8) **PROBLEM SOLVING** In  $\triangle RST$ , which is a possible side length for  $ST$ ? Select all that apply.

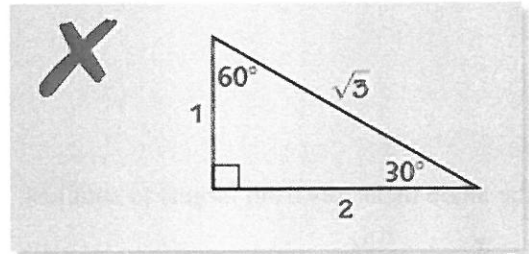
- (A) 7  $\otimes$
- (B) 8  $\otimes$
- (C) 9  $\otimes$
- (D) 10  $\otimes$



9) **REASONING** In the figure,  $\overline{XY}$  bisects  $\angle WYZ$ . List all six angles of  $\triangle XYZ$  and  $\triangle WXY$  in order from smallest to largest. Explain your reasoning.

$\angle 1 = \angle 5$   
 $\angle 3 < \angle 1 < \angle 2$   
 $\angle 4 < \angle 6 < \angle 5$   
 $\angle 3 < \angle 4$   
 $\angle 3 < \angle 4 < \angle 6 < \angle 5 = \angle 1 < \angle 2$

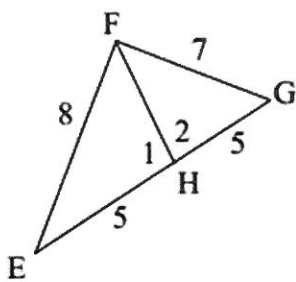
10) **ERROR ANALYSIS** Describe and correct the error in labeling the side lengths 1, 2, and  $\sqrt{3}$  on the triangle.



2 is larger than  $\sqrt{3}$  so it should be opposite the larger angle.

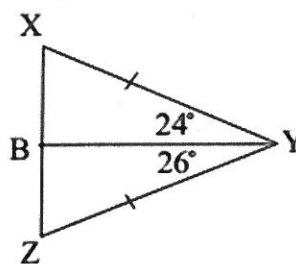
11) Which side or angle is larger?

$m\angle 1, m\angle 2$



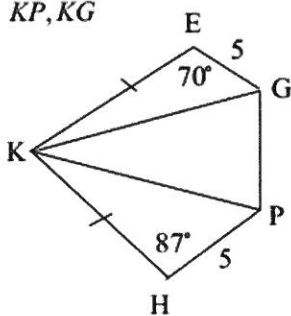
$\angle 1 > \angle 2$

$\overline{XB}, \overline{ZB}$



$\overline{ZB} > \overline{XB}$

$\overline{KP}, \overline{KG}$



$\overline{KG} < \overline{KP}$