

Name: _____

Period: _____

6.5 Practice: Indirect Proof and Inequalities in Triangles

1) Use indirect proof to show that if $WV + VU \neq 12\text{in}$ and $VU = 5\text{in}$, then $WV \neq 7\text{in}$.

Assume $WV + VU \neq 12\text{in}$, $VU = 5\text{in}$, $WV = 7\text{in}$.

By the Segment addition postulate, $VU + WV = 12$. That contradicts our assumption.

Therefore, $WV \neq 7\text{in}$.

2) In $\triangle ABC$, if $m\angle A = 100^\circ$, then $\angle B$ is not a right angle.

Assume $m\angle A = 100^\circ$ & $m\angle B = 90^\circ$.

By the ~~angle~~ angle addition postulate, $m\angle A + m\angle B + m\angle C > 180^\circ$.

That contradicts the triangle sum theorem.

Therefore, $\angle B$ is not a right angle.

3) In $\triangle JKL$, if M is the midpoint of \overline{KL} , then \overline{JM} is a median.

Assume M is a midpoint of \overline{KL} & \overline{JM} is not a median.

This contradicts the definition of a median.

Therefore, \overline{JM} is a median.

4) Can you make a triangle with the given side lengths?

13, 20, 7

No

3.2, 3.2, 0.1

Yes

$\sqrt{1}, \sqrt{2}, \sqrt{3}$

Yes

3x, 4x, 10x

No

5) Find the range of possible side lengths for the third side of a triangle given two sides in the form $__ < x < __$.

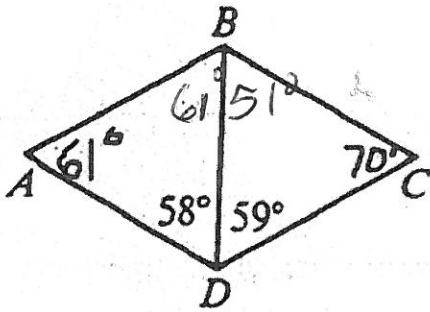
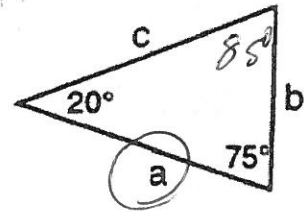
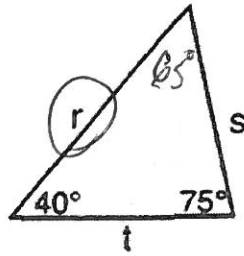
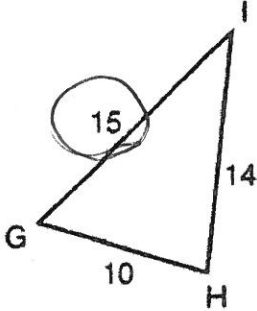
10, 15

$$5 < x < 25$$

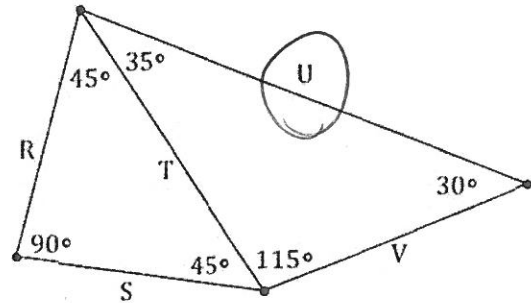
9, 9

$$0 < x < 18$$

6) Indicate the largest side (if given angles) or angle (if given sides).



$$AD = BD$$



7) Which side or angle is larger?

$m\angle 1, m\angle 2$

