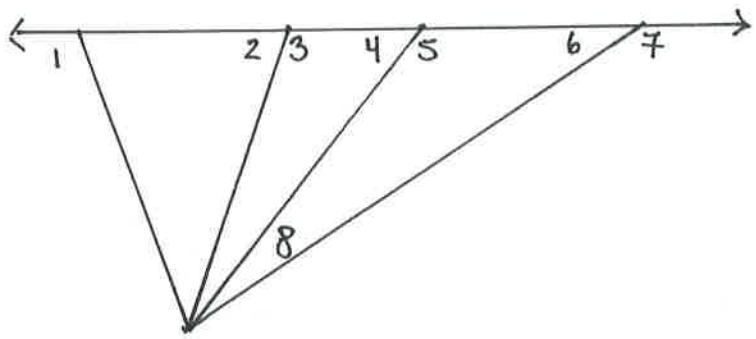
Geometry HW 12/18/2012

p. 285 # 11-32 all Solutions Guide



use for # 11-16

Determine which angle has the greatest measure.

11.) $\angle 1, \angle 2, \angle 4$ $m\angle 2 > m\angle 4$ b/c $\angle 2$ is the exterior $\angle$

$m\angle 1 > m\angle 2$ b/c $\angle 1$ is the exterior $\angle$

so $\angle 1$ has the greatest measure.

12.) $\angle 2, \angle 4, \angle 6$ $m\angle 4 > m\angle 6$ and

$m\angle 2 > m\angle 4$ so

$\angle 2$ has the greatest measure

13.) $\angle 3, \angle 5, \angle 7$ $m\angle 5 > m\angle 3$ (ext $\angle$.)

$m\angle 7 > m\angle 5$ (ext. $\angle$)

so $\angle 7$ has the greatest measure

14.) $\angle 1, \angle 2, \angle 6$ $m\angle 2 > m\angle 6$ b/c

$m\angle 2 > m\angle 4$ and $m\angle 4 > m\angle 6$

then $m\angle 1 > m\angle 2$ (ext $\angle$)

so $\angle 1$ has the greatest measure

15.) $\angle 5, \angle 7, \angle 8$

$m\angle 5 + m\angle 8 = m\angle 7$, so $m\angle 7$ must be greater than either $m\angle 5$ or $m\angle 8$

So $\angle 7$ has the greatest measure

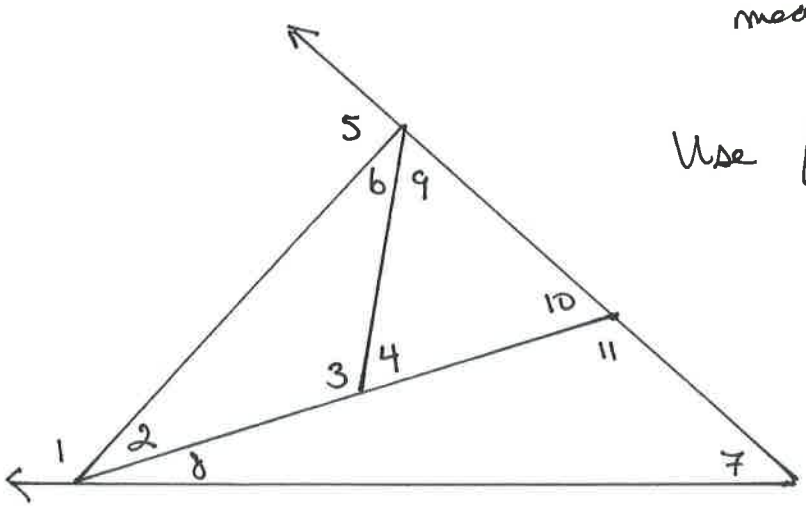
16.) $\angle 2, \angle 6, \angle 8$

$m\angle 2 > m\angle 4$ (ext $\angle$)

and $m\angle 4 = m\angle 6 + m\angle 8$

so $m\angle 4 > m\angle 6$ and $m\angle 4 > m\angle 8$

thus $\angle 2$ has the greatest measure



Use for #17 - 20

Use the Exterior Angle Inequality Theorem to list all angles that satisfy the stated conditions.

17.) measures less than $m\angle 5$:

$\angle 5$ is exterior to $\angle 2$ & $\angle 10$,

$\angle 10$ is exterior to $\angle 8$ & $\angle 7$, so $\angle 2, \angle 7, \angle 8, \angle 10$ are all smaller than $\angle 5$

18.) measures greater than $m\angle 6$:

$\angle 1$ is exterior to $\angle 6$ on the left ($m\angle 1 > m\angle 6$)

$\angle 4$ is exterior to $\angle 6$ on the right ($m\angle 4 > m\angle 6$)

$\angle 11$ is exterior to $\angle 4$ (on the right) ($m\angle 11 > m\angle 4 > m\angle 6$)

$\angle 1, \angle 4, \angle 11$ are all greater than $\angle 5$

19.) measures greater than $m\angle 10$:

$\angle 3$ is exterior to $\angle 10$ ($m\angle 3 > m\angle 10$)

$\angle 1$ is exterior to $\angle 3$ ($m\angle 1 > m\angle 3 > m\angle 10$)

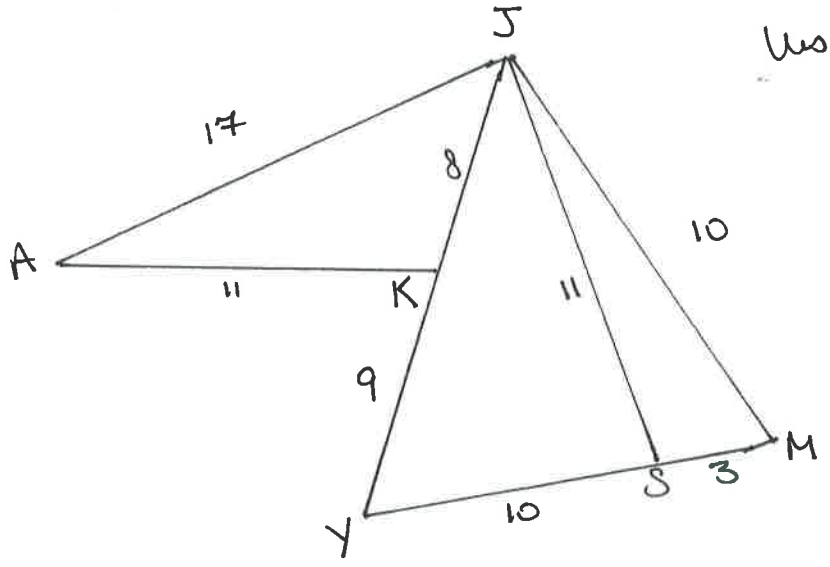
$\angle 1$, $\angle 3$ are larger than $\angle 10$

20.) measures less than $m\angle 11$:

$\angle 11$ is exterior to $\angle 4$ & $\angle 9$ ($m\angle 11 > m\angle 4$, $m\angle 11 > m\angle 9$)

$\angle 4$ is exterior to $\angle 2$ & $\angle 6$ ($m\angle 4 > m\angle 2$, $m\angle 4 > m\angle 6$)

$\angle 2$, $\angle 4$, $\angle 6$, $\angle 9$ are all smaller than $\angle 11$.



Use for # 21 - 26.

Determine the relationship btwn. the measures of the given angles.

21.) $\angle KAJ$, $\angle AJK$ $\rightsquigarrow$ $m\angle KAJ < m\angle AJK$
"8" "11" (opposite side < opposite side)

22.) $\angle MJY$, $\angle JYM$ $\rightsquigarrow$ $m\angle MJY > m\angle JYM$
"13" "10"

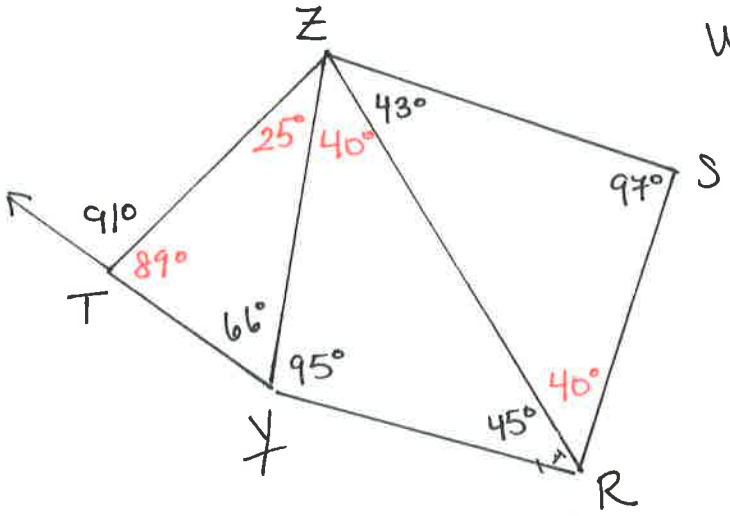
23.) $\angle SMJ$, $\angle MJS$ $\rightsquigarrow$ $m\angle SMJ > m\angle MJS$
"11" "10"

24.) $\angle AKJ$, $\angle JAK$ $\rightsquigarrow$ $m\angle AKJ > m\angle JAK$
"17" "8"

25.) $\angle MYJ$, $\angle JMY$ $\rightsquigarrow$ $m\angle MYJ < m\angle JMY$
"10" (8+9) "17"

26.) $\angle JSY$, $\angle JYS$ $\rightsquigarrow$ $m\angle JSY > m\angle JYS$
(8+9) "11"
"17"

Use for #27-32.



Step 1: find all the missing ∠ measures. (red).

Determine the relationship btwn the lengths of the given sides.

27.) $\overline{ZY}$, $\overline{YR}$ ⇝ ZY > YR
"45°" "40°"

28.) $\overline{SR}$, $\overline{ZS}$ ⇝ SR > ZS
"43°" "40°"

29.) $\overline{RZ}$, $\overline{SR}$ ⇝ RZ > SR
"97°" "43°"

30.) $\overline{ZY}$, $\overline{RZ}$ ⇝ ZY < RZ
"45°" "95°"

31.) $\overline{TY}$, $\overline{ZY}$ ⇝ TY < ZY
"25°" "89°"

32.) $\overline{TY}$, $\overline{ZT}$ ⇝ TY < ZT
"25°" "66°"