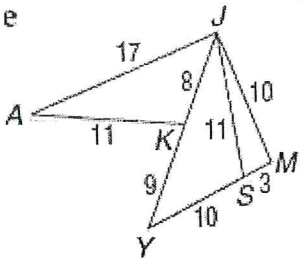
Acc Geometry
Practice Ext Angle Thm & Side-Angle Inq (4.2 & 5.2)

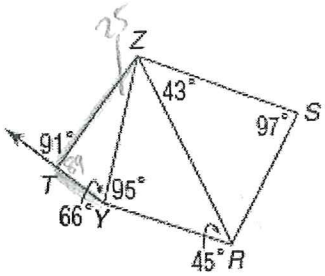
Name Key
Date

**Determine the relationship between the measures of the given angles.**




1. $\angle MJY$ ___>___ $\angle JYM$  YM 13  JM 10
2. $\angle AKJ$ ___>___ $\angle JAK$  AJ 17  JK 8
3. $\angle JSY$ ___>___ $\angle JYS$  JY 17  JS 11

**Determine the relationship between the length of the given sides.**



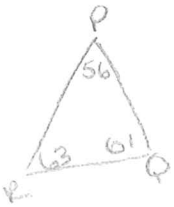

4. $\overline{SR}$ ___>___ $\overline{ZS}$  43  40
5. $\overline{ZY}$ ___<___ $\overline{RZ}$  45  95
6. $\overline{TY}$ ___<___ $\overline{ZT}$  25  66

**List the sides of Triangle PQR in order from shortest to longest for the given angle measures.**

7. $m\angle P = 3n + 20, m\angle Q = 2n + 37, m\angle R = 4n + 15$

$\angle P + \angle Q + \angle R = 180$ ($\Delta$Sum)
$9n + 72 = 180$
$9n = 108$
$n = 12$

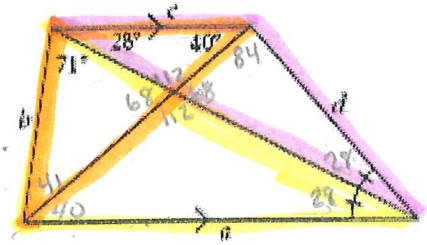
$m\angle P = 56$
$m\angle Q = 61$
$m\angle R = 63$




$\boxed{RQ < PR < PQ}$

**Arrange the unknown measures in order from greatest to least.**

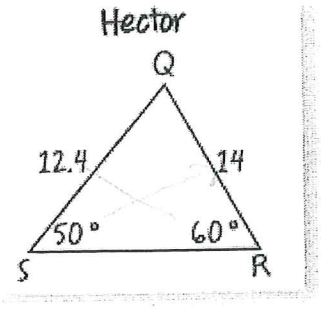
8.

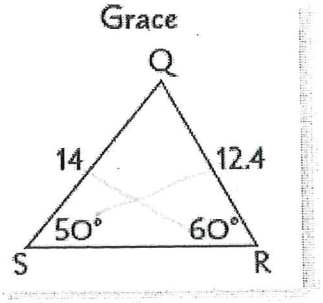



$a > c = d > b$

$a > c = d > b$

9. Hector and Grace each labeled $\Delta QRS$. Who is correct? Explain.

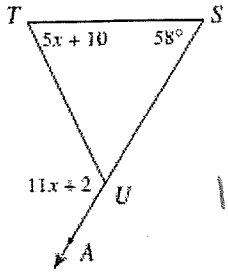



Grace is correct
Hector labeled QR larger than QS, but 50° is smaller than 60° so they should be switched

**Solve for x or find the indicate angle measure.**

10)

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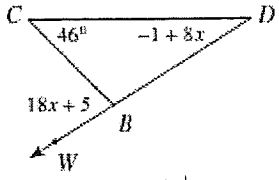
11)

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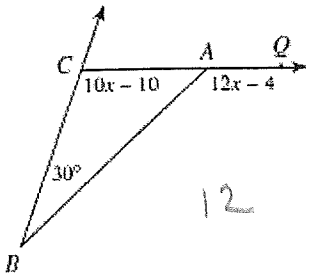
12)

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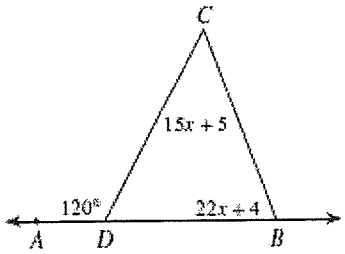
13)

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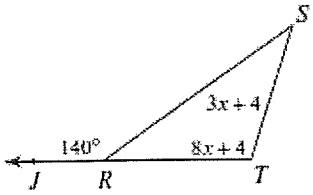
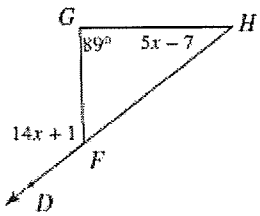
14) Find $m\angle S$.



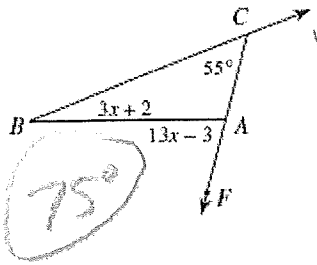

40°

15) Find $m\angle H$.




38°

16) Find $m\angle FAB$.




75°

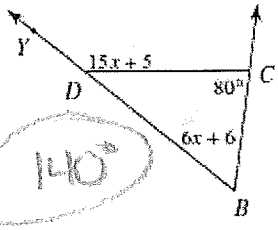
$13x - 3 = 55 + 3x + 2$

$13x - 3 = 57 + 3x$

$10x = 60$

$x = 6$

17) Find $m\angle YDC$.




140°

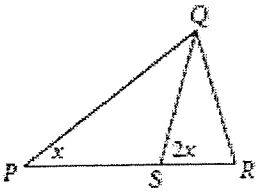
$15x + 5 = 80 + 6x + 6$

$15x + 5 = 86 + 6x$

$9x = 81$

$x = 9$

18. Explain why $\Delta PQS$ is isosceles.




$\angle P + \angle PQS = \angle QSR$ (Ext ∡ Theorem)

$x + \angle PQS = 2x$

$\angle PQS = x$

Since there are 2 ≅ ∠s the sides opposite must be ≅ also. So QS = PS and △PQS must be isosceles by definition.