Name KEY Class _____ Date _____

Geometry Chapter 5 Review

*Determine whether the given measures can be the lengths of the sides of a triangle. Write yes or no and **explain**.*

1. 10.4, 12.4, 23.3

$10.4 + 12.4 \not> 23.3$

$12.4 + 23.3 > 10.4$ ✓

$23.3 + 10.4 > 12.4$ ✓

NO. THE SUM OF 2 SIDES IS NOT GREATER THAN THE THIRD SIDE

2. 6, 8, 10

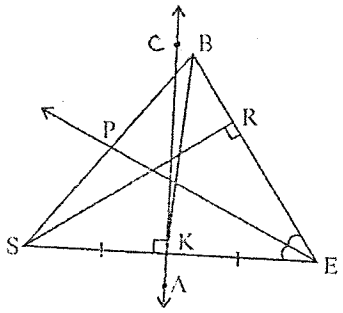
$6 + 8 > 10$

$8 + 10 > 6$

$10 + 6 > 8$

YES

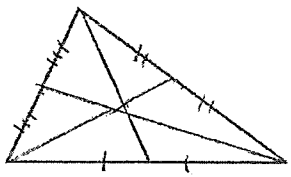
Use the diagram.



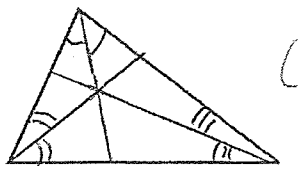
3. Name a median. 3. $\overline{BK}$ or $\overline{BA}$
4. Name an angle bisector. 4. $\overline{EP}$
5. Name an altitude. 5. $\overline{SR}$
6. Name a perpendicular bisector 6. $\overline{CA}$ or $\overline{CK}$

7. Name the point of concurrency for each triangle below.

(medians)



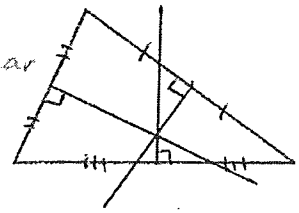
CENTROID



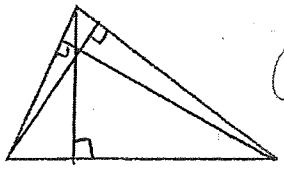
(angle bisectors)

INCENTER

(perpendicular bisectors)



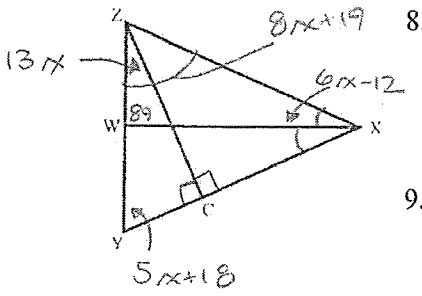
CIRCUMCENTER



(altitudes)

ORTHOCENTER

Use the diagram.



8. $\overline{ZC}$ is an altitude. $m\angle WZC = 13x$, $m\angle CYW = 5x+18$. Find $m\angle WZC$.

$13x + 5x + 18 + 90 = 180$

$18x + 108 = 180$

$18x = 72$

$x = 4$

$m\angle WZC = 13(4)$

$= 52°$

9. $\overline{XW}$ is an angle bisector. $\angle WZX = 8x+19$, $\angle XWZ = 89$, and $\angle ZXW = 6x-12$. Find $m\angle WXY$

$8x+19 + 6x-12 + 89 = 180$

$14x + 96 = 180$

$14x = 84$

$x = 6$

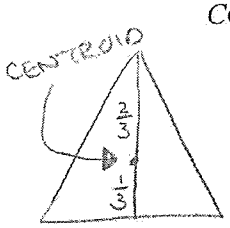
$m\angle WXY = 6(6) - 12$

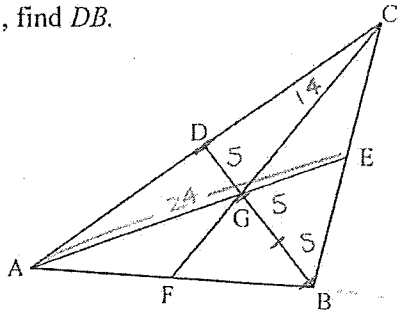
$= 36 - 12$

$= 24°$

---

10. If point G is the centroid of $\triangle ABC$ and $AE = 24$, and $DG = 5$, and $CG = 14$, find DB.





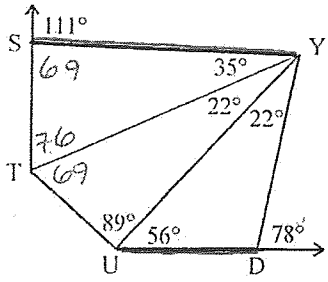
$DB = 5 + 5 + 5$

$= 15$

10. 15

---

11. Determine the relationship between the lengths of $\overline{UD}$ and $\overline{YS}$.

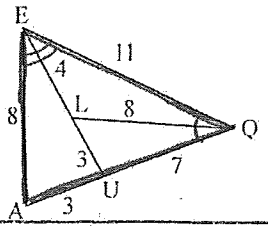


11. $UD < YS$

or $YS > UD$

---

12. Determine the relationship between the measures of $\angle EQU$ and $\angle AEQ$.



$\angle EQU$ across from 8

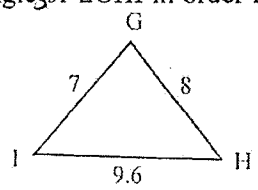
$\angle AEQ$ across from $3+7 = 10$

12. $m\angle EQU < m\angle AEQ$

or $m\angle AEQ > m\angle EQU$

---

13. List the angles of $\triangle GHI$ in order from least to greatest measure.



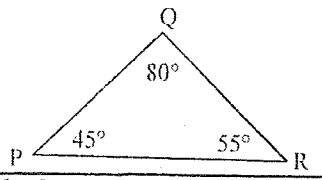
$H \Rightarrow 7$

$G \Rightarrow 9.6$

$I \Rightarrow 8$

13. $\angle H, \angle I, \angle G$

14. List the sides of $\triangle PQR$ in order from shortest to longest.

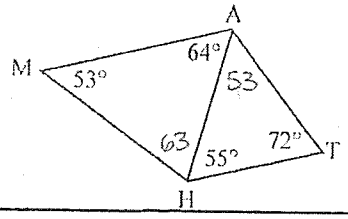


across from
$\overline{QR} \Rightarrow 45$
$\overline{RP} \Rightarrow 80$
$\overline{PQ} \Rightarrow 55$

14. $\overline{QR}, \overline{PQ}, \overline{RP}$

---

15. Name the longest segment in the figure below.



On $\triangle ATH$ $\overline{AH} \Rightarrow 72°$

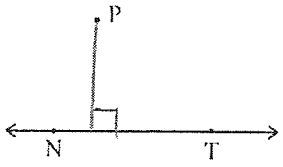
On $\triangle AMH$ $\overline{AH} \Rightarrow 53°$

So $64° \Rightarrow \overline{MH}$ IS LONGEST

15. $\overline{MH}$

---

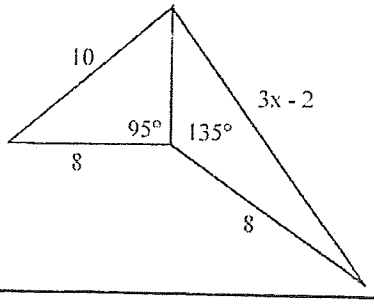
16. Draw in the shortest distance between P to $\overline{NT}$



← SEE GRAPH

---

17. Write and solve an inequality to find x.



SINCE $135 \Rightarrow 3x-2$

$95 \Rightarrow 10$

$3x-2 > 10$

$3x > 12$

$x > 4$

also, make sure the angle is positive.

$3x-2 > 0$

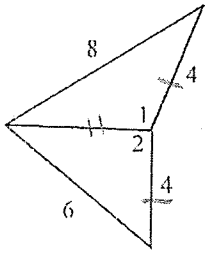
$3x > 2$

$x > \frac{2}{3}$

17. $x > 4$

---

18. Write an inequality comparing $m\angle 1$ and $m\angle 2$.



$m\angle 1 \Rightarrow 8$

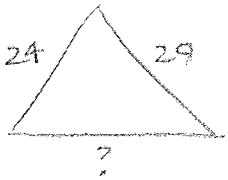
$m\angle 2 \Rightarrow 6$

18. $m\angle 1 > m\angle 2$

or $m\angle 2 < m\angle 1$

---

19. If two sides of a triangle are 24 meters long and 29 meters long, then the third side must have a length between what two measures?



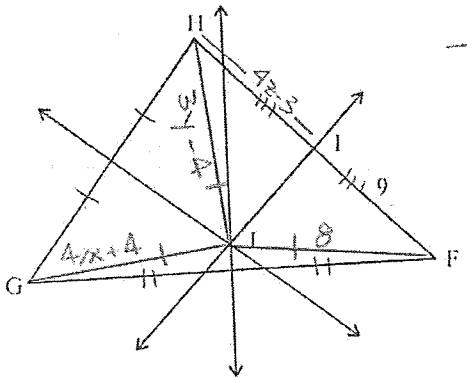
$29 - 24 = 5$

$29 + 24 = 53$

$5 < x < 53$

19. $5 < x < 53$

20. Lines s, t, and u are perpendicular bisectors of $\triangle FGH$ and meet at J. If $JG = 4x+4$, $JH = 3y-4$, $HI = 4z-3$ and $JF = 8$, find x, y, and z.



The circumcenter of a $\triangle$ is equidistant from the vertices of the $\triangle$.

$4x+4=8$ $\quad$ $3y-4=8$ $\quad$ $4z-3=9$

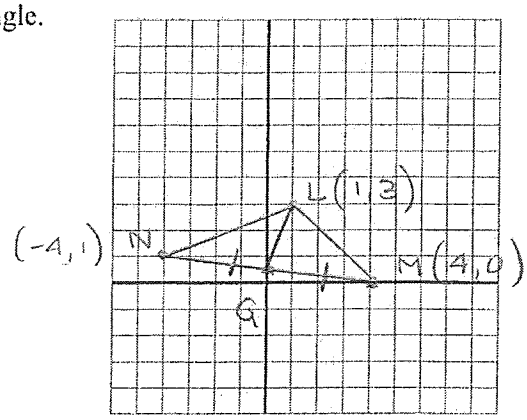
$4x=4$ $\quad$ $3y=12$ $\quad$ $4z=12$

$\boxed{x=1}$ $\quad$ $\boxed{y=4}$ $\quad$ $\boxed{z=3}$

---

21. The vertices of $\triangle LMN$ are L(1, 3), M(4, 0) and N(-4, 1).

a. Graph the triangle.



b. $\overline{LG}$ is a median of the triangle. What are the coordinates of point G? b. $\left(0, \frac{1}{2}\right)$

FIND MIDPOINT OF $\overline{NM}$

$\left(\frac{-4+4}{2}, \frac{1+0}{2}\right) \Rightarrow \left(0, \frac{1}{2}\right)$

c. Graph median $\overline{LG}$ on the same graph.