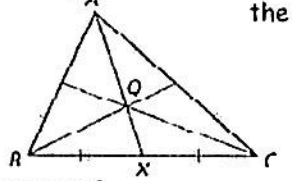
Name: KEY

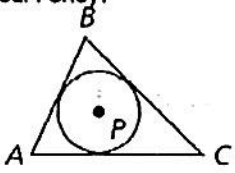
UNIT 3 REVIEW!

Aim: To review all the points of concurrency.

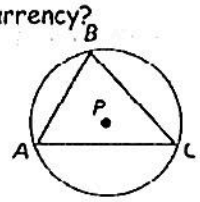
1. Point Q represents which point of concurrency?
   - (a) centroid
   - b. incenter
   - c. orthocenter
   - d. circumcenter



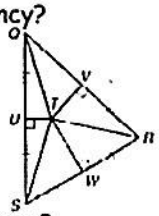
2. Point P represents which point of concurrency?
   - a. centroid
   - (b) incenter
   - c. orthocenter
   - d. circumcenter



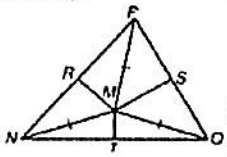
3. Point P represents which point of concurrency?
   - a. centroid
   - b. incenter
   - c. orthocenter
   - (d) circumcenter



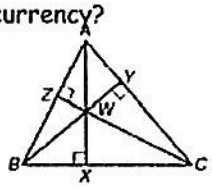
4. Point T represents which point of concurrency?
   - a. centroid
   - b. incenter
   - c. orthocenter
   - (d) circumcenter



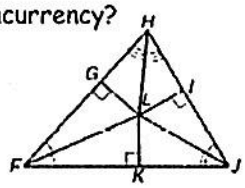
5. Point M represents which point of concurrency?
   - a. centroid
   - b. incenter
   - c. orthocenter
   - (d) circumcenter



6. Point M represents which point of concurrency?
   - a. centroid
   - b. incenter
   - (c) orthocenter
   - d. circumcenter



7. Point L represents which point of concurrency?
   - a. centroid
   - (b) incenter
   - c. orthocenter
   - d. circumcenter



8. Which point of concurrency is the intersection of the medians of the triangle?
   - (a) centroid
   - b. incenter
   - c. orthocenter
   - d. circumcenter

9. Which point of concurrency is the intersection of the altitudes of the triangle?
   - a. centroid
   - b. incenter
   - (c) orthocenter
   - d. circumcenter

10. Which point of concurrency is equidistant from the three sides of a triangle?
    - a. centroid
    - (b) incenter
    - c. orthocenter
    - d. circumcenter

11. Which point of concurrency is equidistant from the three vertices of a triangle?
    - a. centroid
    - b. incenter
    - c. orthocenter
    - (d) circumcenter

12. Which point of concurrency is the center of gravity of a triangle?
    - (a) centroid
    - b. incenter
    - c. orthocenter
    - d. circumcenter

13. Which point of concurrency is the intersection of the perpendicular bisectors of the triangle?
    - a. centroid
    - b. incenter
    - c. orthocenter
    - (d) circumcenter

14. Which point of concurrency is the intersection of the angle bisectors of the triangle?
    - a. centroid
    - (b) incenter
    - c. orthocenter
    - d. circumcenter

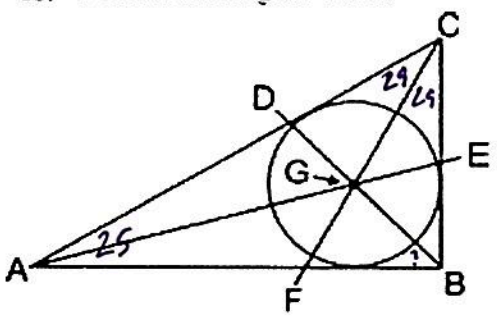
15. The centroid is _____ in the triangle.
    (a) always b. sometimes c. never

16. The incenter is _____ in the triangle.
    (a) always b. sometimes c. never

17. The circumcenter is _____ in the triangle.

a. always (b.) sometimes c. never

18. Consider the diagram below:



a] What is the point G called? INCENTER

b] It must be that $\overline{GB} \cong \overline{GC}$ (TRUE / FALSE)

c] It must be that $m\angle DCG = m\angle ECG$ (TRUE FALSE)

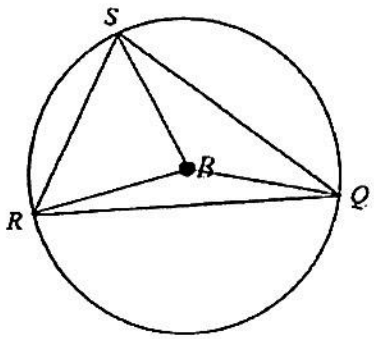
d] It must be that $m\angle ABD = m\angle CBD$ (TRUE FALSE)

e] If $m\angle DAF = 25°$, and $m\angle DCG = 29°$, what is $m\angle ABD$?

$25 + 58 = 83$ $180 - 83$ $\angle ABD = 48.5$

$97/2 = 48.5$

19. Consider the diagram below:



a] What is the point B called? CIRCUMCENTER

b] It must be that $\overline{SB} \cong \overline{RB} \cong \overline{QB}$ (TRUE FALSE)

c] It must be that $m\angle SQB = m\angle RQB$ (TRUE FALSE)

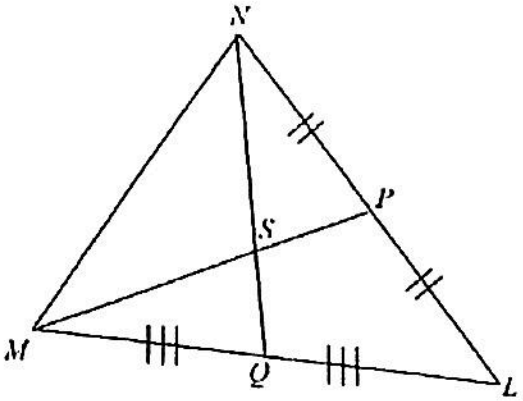
d] B would be located outside of the triangle if the triangle was…

(1) acute (2) obtuse

e] If this were a right triangle, then B would be located:

(1) On the hypotenuse of the triangle
(2) On the vertex of the right angle of the triangle

20. Consider the diagram below:



a] What is the point S called? CENTROID

b] If $m\overline{NQ} = 24$, find $m\overline{NS}$ and $m\overline{SQ}$.

$m\overline{NS} = 16$ $m\overline{SQ} = 8$

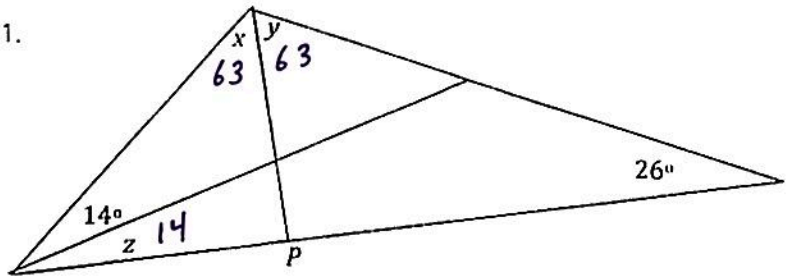
c] If $m\overline{SP} = 7$, find $m\overline{MS}$ and $m\overline{MP}$.

$m\overline{MS} = 14$ $m\overline{MP} = 21$

d] It must be that $\overline{SP} \cong \overline{SQ}$ (TRUE / FALSE)

e] It must be that $\angle MNQ \cong \angle QNL$ (TRUE / FALSE)

21.

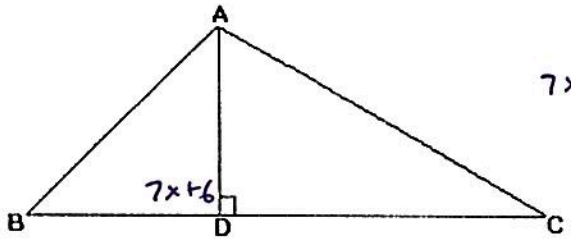


$$\begin{array}{r} {}^{1}28 \\ +\ 26 \\ \hline 54 \end{array} \qquad \begin{array}{r} 710 \\ \cancel{180} \\ -\ 54 \\ \hline 126 \end{array}$$

63

What is the measure of angles x, y, and z?

22.



$7x+6 = 90$

$7x = 84$

$x = 12$

In the above triangle, AD is an altitude. If the measure of angle BDA is 7x+6, what is the value of x?

23.

In $\triangle ABC$, $\overline{DE}$ is perpendicular bisector of $\overline{AC}$ with D on $\overline{AC}$. If $AD = 2y + 4$, $CD = y + 12$, and $m\angle EDC = 5(x - 12)°$. Find the value of x and y. Find length of AD, DC, and, AC.

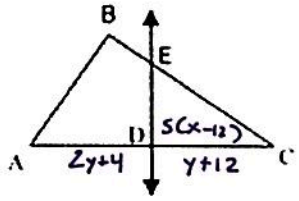
$2y+4 = y+12$

$y = 8$

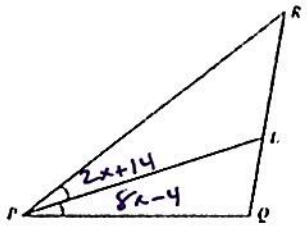
$5(x-12) = 90$

$x-12 = 18$

$x = 30$



24. In the triangle below, angle bisector PL is shown. If the measure of angle RPL is 2x + 14 and the measure of angle LPQ is 8x - 4. What is the value of x and what is the measure of angle RPL?



$2x + 14 = 8x - 4°$

$18 = 6x$

$3 = x$

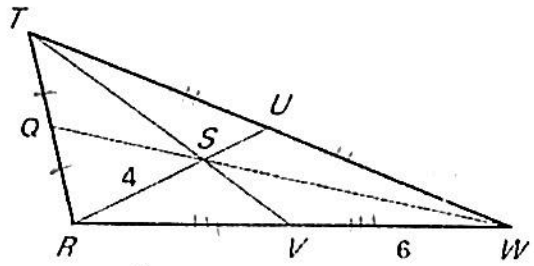
$RPL = 2x+14$

$= 2(3)+14$

$= 6+14$

$m\angle RPL = 20$

Point S **is the** ***centroid*** **of** $\triangle RTW$, $RS = 4$, $VW = 6$, **and** $TV = 9$. **Find the length of each segment.**

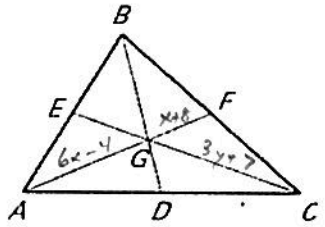


33. RV = 6 34. SU = 2

35. RU = 6 36. RW = 12

37. TS = 6 38. SV = 3

Point G **is the centroid of** $\triangle ABC$. **Use the given information to find the value of the variable.**



39. $FG = x + 8$ and $GA = 6x - 4$

$$6x - 4 = 2(x + 8)$$
$$6x - 4 = 2x + 16$$
$$4x = 20$$

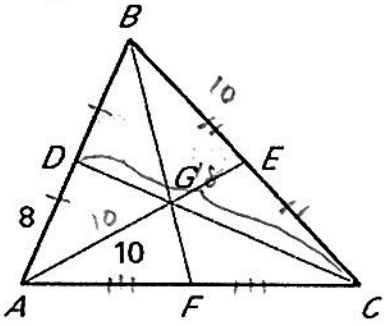
$x =$ 5

40. If $CG = 3y + 7$ and $CE = 6y$

$$\frac{2}{3}(6y) = 3y + 7$$
$$4y = 3y + 7$$
$$y = 7$$

$y =$ 7

Point G ***is*** **the** ***centroid*** **of** $\triangle ABC$, $AD = 8$, $AG = 10$, $BE = 10$, $AC = 16$ **and** $CD = 18$. **Find the length of each segment.**



25. DB = 8 26. EA = 15

27. CG = 12 28. BA = 16

29. GE = 5 30. GD = 6

31. BC = 20 32. AF = 8