

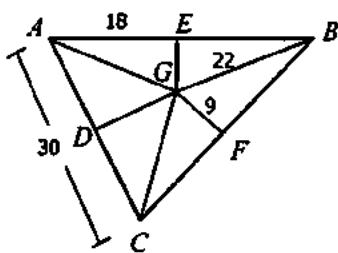
Group Members: _____

Block: _____

Centers of Triangles Review

Directions: Work together to complete each problem. Do not divide up the work!
Each person should be participating. At the end of the block, one person's paper
will be chosen at random to be graded for the group.

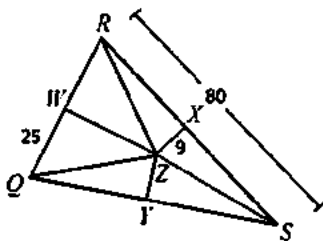
1. If G is the circumcenter of $\triangle ABC$, find each missing measure.



$$\begin{aligned} \text{b) } x^2 + 9^2 &= 22^2 \\ x^2 + 81 &= 484 \\ x^2 &= 403 \\ x &= 20 \end{aligned}$$

$$\begin{aligned} \text{e) } x^2 + 18^2 &= 22^2 & \text{a) } AD &= \underline{15} \\ x^2 + 324 &= 484 & \text{b) } FC &= \underline{20} \\ x^2 &= 160 & \text{c) } EB &= \underline{18} \\ x &= 12.6 & \text{d) } AG &= \underline{22} \\ & & \text{e) } EG &= \underline{12.6} \end{aligned}$$

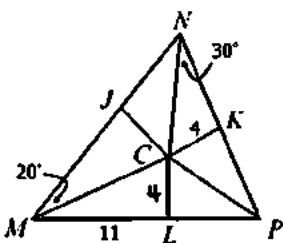
2. If Z is the circumcenter of $\triangle QRS$, find each missing measure.



$$\begin{aligned} \text{b) } 9^2 + 40^2 &= x^2 \\ 1681 &= x^2 \\ 41 &= x \end{aligned}$$

$$\begin{aligned} \text{e) } x^2 + 25^2 &= 41^2 & \text{a) } QR &= \underline{50} \\ x^2 + 625 &= 1681 & \text{b) } RZ &= \underline{41} \\ x^2 &= 1056 & \text{c) } XS &= \underline{40} \\ x &= 32.5 & \text{d) } ZS &= \underline{41} \\ & & \text{e) } WZ &= \underline{32.5} \end{aligned}$$

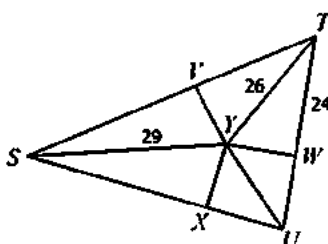
3. If C is the incenter of $\triangle MNP$, find each missing measure.



$$\begin{aligned} \text{e) } 4^2 + 11^2 &= x^2 \\ 137 &= x^2 \\ 11.7 &= x \end{aligned}$$

$$\begin{aligned} \text{a) } m\angle CML &= \underline{20^\circ} \\ \text{b) } m\angle MNP &= \underline{60^\circ} \\ \text{c) } m\angle NPC &= \underline{40^\circ} \\ \text{d) } JC &= \underline{4} \\ \text{e) } MC &= \underline{11.7} \end{aligned}$$

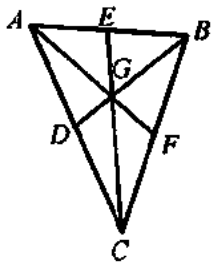
4. If Y is the incenter of $\triangle STU$, find each missing measure.



$$\begin{aligned} \text{b) } x^2 + 24^2 &= 26^2 \\ x^2 + 576 &= 676 \\ x^2 &= 100 \\ x &= 10 \end{aligned}$$

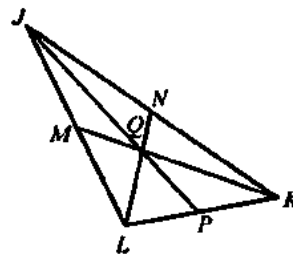
$$\begin{aligned} \text{c) } x^2 + 10^2 &= 29^2 & \text{a) } VT &= \underline{24} \\ x^2 + 100 &= 841 & \text{b) } YW &= \underline{10} \\ x^2 &= 741 & \text{c) } SX &= \underline{27.2} \\ x &= 27.2 & \text{d) } YX &= \underline{10} \\ & & \text{e) } SV &= \underline{27.2} \end{aligned}$$

5. If G is the centroid of $\triangle ACE$, $AG = 26$, $BC = 44$, and $DG = 12$, find each missing measure.



- a) $GF = \underline{13}$
 b) $AF = \underline{39}$
 c) $FC = \underline{22}$
 d) $GB = \underline{24}$
 e) $DB = \underline{36}$

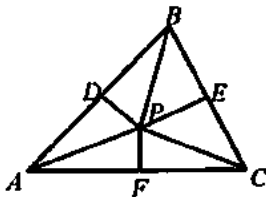
6. If Q is the centroid of $\triangle JKL$, $LN = 72$, $JP = 93$, and $MK = 78$, find each missing measure.



- a) $LQ = \underline{48}$
 b) $QN = \underline{24}$
 c) $QP = \underline{31}$
 d) $JQ = \underline{62}$
 e) $QK = \underline{52}$

For questions 7 and 8, P is the circumcenter of $\triangle ABC$.

7. If $BE = 8x - 11$, and $EC = 13x - 31$, find BC .



$$13x - 31 = 8x - 11$$

$$5x - 31 = -11$$

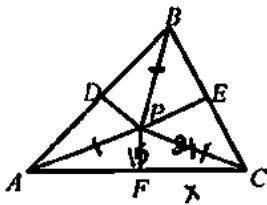
$$5x = 20$$

$$x = 4$$

$$BE = 8(4) - 11 = 21$$

$$BC = 2(21) = 42$$

8. If $BP = 9x - 29$, $AP = 5x - 1$, and $PF = 15$, find FC .



$$9x - 29 = 5x - 1$$

$$4x - 29 = -1$$

$$4x = 28$$

$$x = 7$$

$$x^2 + 15^2 = 34^2$$

$$x^2 + 225 = 1156$$

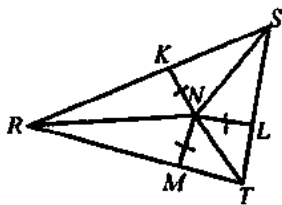
$$x^2 = 931$$

$$x = 30.5$$

$$5(7) - 1 = 34$$

For questions 9 and 10, N is the incenter of $\triangle RST$.

9. If $MN = 9x - 1$, $NL = 16x - 15$, find KN .



$$16x - 15 = 9x - 1$$

$$7x - 15 = -1$$

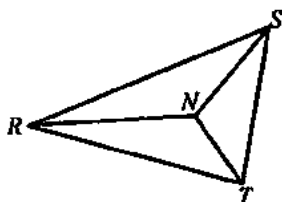
$$7x = 14$$

$$x = 2$$

$$MN = 9(2) - 1 = 17$$

$$KN = 17$$

10. If $m\angle RST = 3x + 17$, $m\angle STR = 8x - 32$, and $m\angle TRS = 2x$, find $m\angle RSN$.



$$3x + 17 + 8x - 32 + 2x = 180$$

$$13x - 15 = 180$$

$$13x = 195$$

$$x = 15$$

$$m\angle RST = 3(15) + 17 = 62^\circ$$

$$m\angle RSN = 31^\circ$$