PREIMO 2010 - GEO. POMERIGGIO

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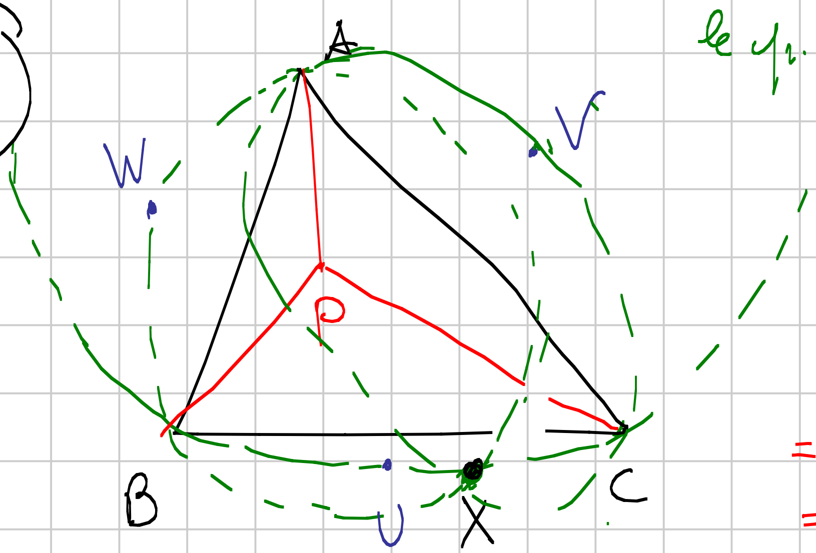


le circ. circ. a: BCU, CAV, ABW concorrono

$\pi - A\hat{V}C =$
$= \pi - (2\pi - 2A\hat{P}C) =$
$= 2A\hat{P}C - \pi$

$\Gamma_{ABW} \cap \Gamma_{BCU} = X$ Vorremmo $AXCV$ ciclico

$B\hat{X}A = \pi - B\hat{W}A$ (Γ_{ABW}) $B\hat{W}A = 2(\pi - A\hat{P}B)$ (W centro di Γ_{APB})

$$B\hat{X}C = B\hat{U}C = 2(\pi - B\hat{P}C)$$

$$A\hat{X}C = B\hat{X}C - B\hat{X}A = 2(\pi - B\hat{P}C) - \pi + 2(\pi - A\hat{P}B) =$$

$$= 3\pi - 2B\hat{P}C - 2A\hat{P}B = 2A\hat{P}C - \pi = \pi - A\hat{V}C$$

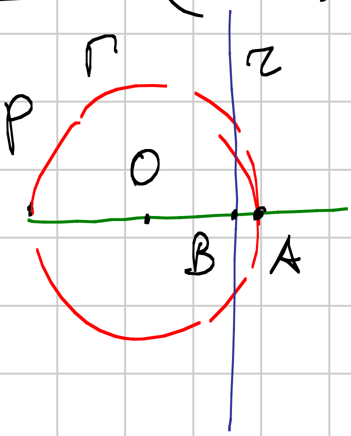
$$B\hat{P}C + A\hat{P}B + A\hat{P}C = 2\pi$$

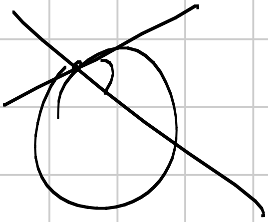
$$2B\hat{P}C + 2A\hat{P}B = 2\pi - 2A\hat{P}C$$

$\Downarrow$

AXCV ciclico.

E se inverto? (in P)





1. $PO \perp \Gamma$

$$\Downarrow$$

$PO' \perp r$

2. $A \longrightarrow B = PA \cap r$

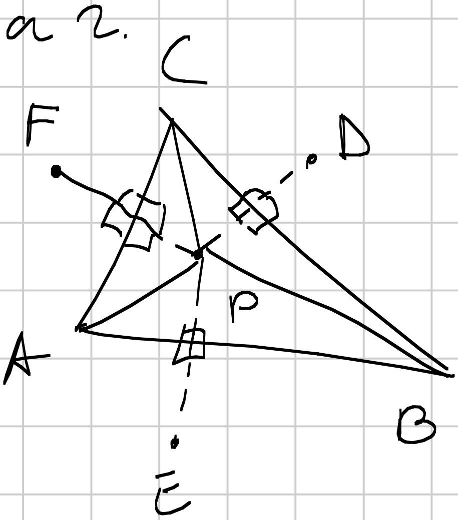
$$\frac{PA}{PO} = 2 \qquad PB \cdot PA = 1$$

$$PO \cdot PO' = 1$$

$$PA = \frac{1}{PB} \qquad \Rightarrow \frac{PO'}{PB} = 2$$

$$PO = \frac{1}{PO'}$$

O' = simm. di P risp. a r.



Γ_{CPA}, Γ_{CDB}, Γ_{AEB} concorrono.

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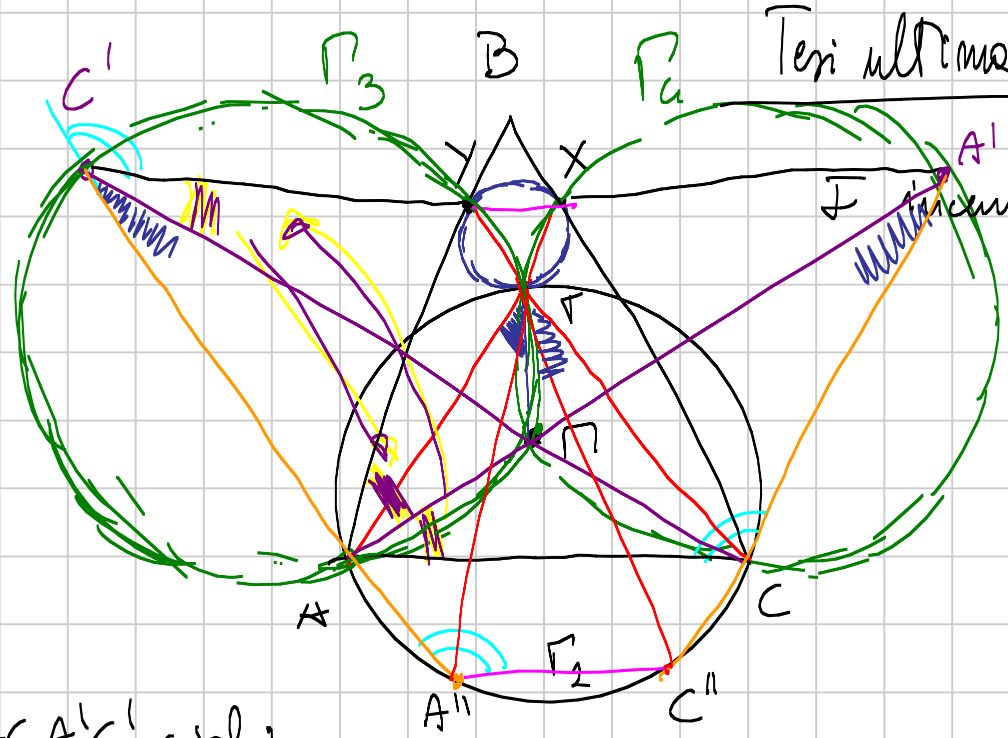
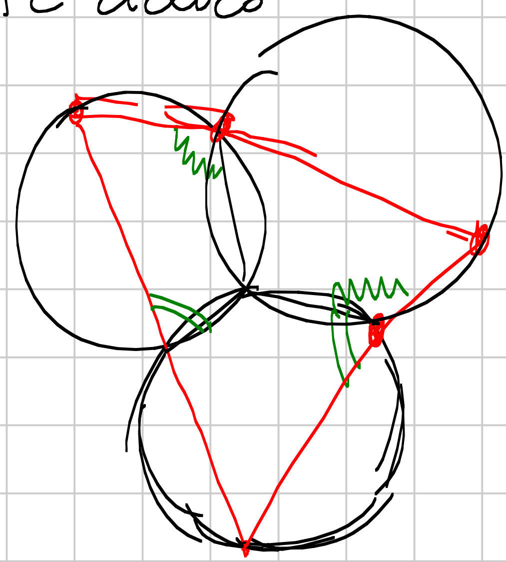
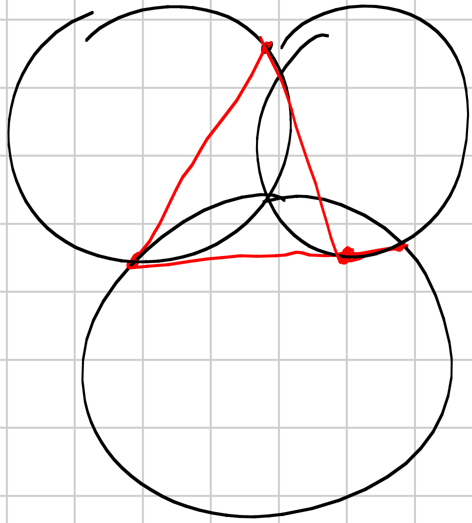
Tesi ultima: TI biseca $A\hat{T}C$.

I incentro di ABC



a) $ACA'C'$ ciclico





Considero $\Gamma_2, \Gamma_3, \Gamma_4$ in T, faccio il triangolo dato e C

$\Rightarrow A', C', X, Y$ sono allineati

$A'' = AC' \cap XT \in \Gamma_1$

$C'' = A'C \cap YT \in \Gamma_1$

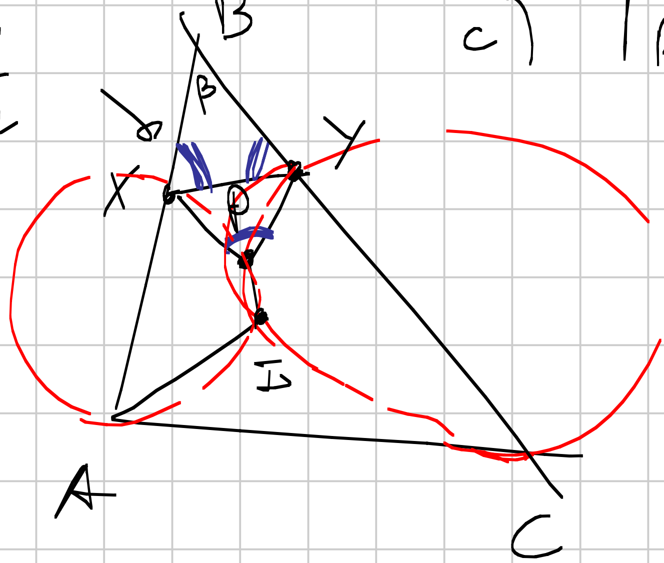
e $A''C'' \parallel XY \Rightarrow \parallel A'C'$

$\Rightarrow ACA'C'$ ciclico per angolo.

b) $\Pi = I$

d) TI bisettrice $A\hat{T}\Pi = \Pi\hat{T}C$

$\frac{\pi}{2} - \frac{\beta}{2}$



c) Γ_{PXY} tange AB, CB

$X\hat{P}I = \pi - \frac{\alpha}{2}$

$Y\hat{P}I = \pi - \frac{\gamma}{2}$

$X\hat{P}I + Y\hat{P}I = 2\pi - \frac{\alpha}{2} - \frac{\gamma}{2}$

$\Rightarrow X\hat{P}Y = \frac{\alpha}{2} + \frac{\gamma}{2}$

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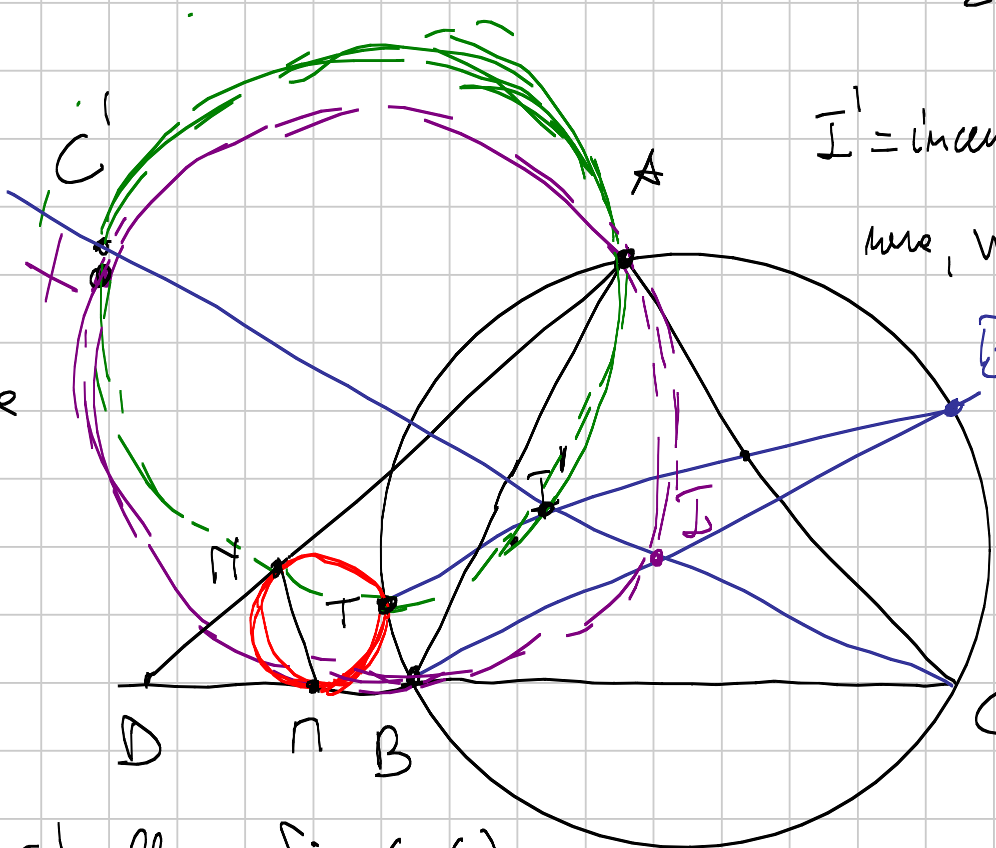
I' = incentro ADC

nero, viola, verde

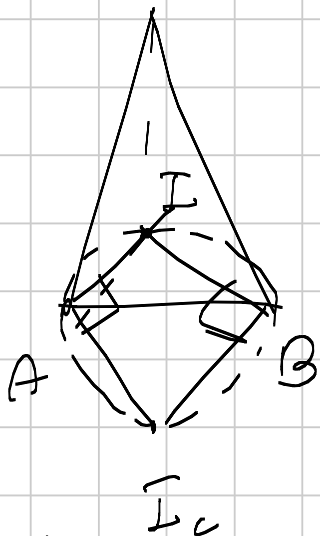
TI' biseca $A\hat{T}C$.



a) M, N, C' allineati (p-6)

b) $X = \Gamma(ATNI') \cap \Gamma(ABI)$

$\Rightarrow X, I, I'$ allineati



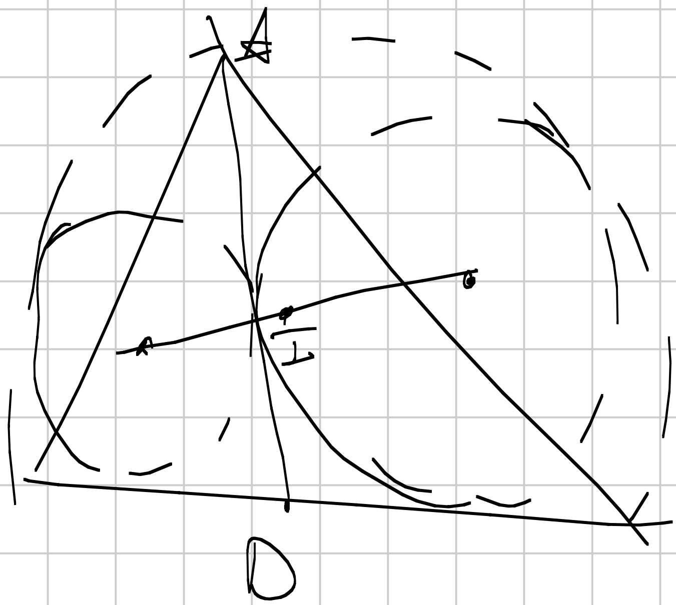
- $B' = BI \cap \Gamma$

$\Rightarrow B', T, I'$ allineati

$XI \cap \text{verde} \in B'T \Rightarrow XI \cap \text{verde} = I'$

$\Rightarrow X, I, I'$ allineati

$\Rightarrow X = C' \Rightarrow X = I_C \Rightarrow I_C$ all. con M e N $\square$



Thebault

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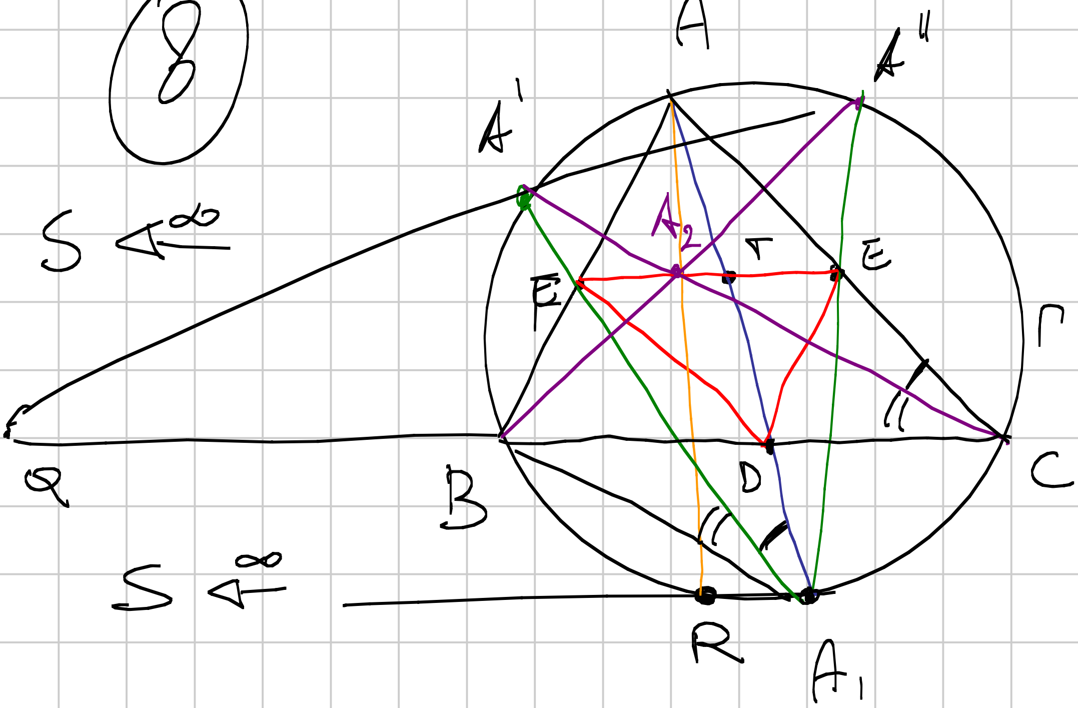
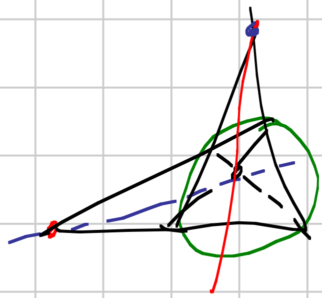


AA_2
BB_2 concorrono
CC_2



1. $A'A'' \cap BC = Q \qquad pol_{\Gamma}(Q) \ni A_2$

2. $S = EF \cap BC$ pt. all'∞ $\quad (S, D, B, C) = -1$

$\Rightarrow (SA_1, DA_1, BA_1, CA_1) = -1$

$(R, A, B, C)_\Gamma = -1$

$\Rightarrow$ sono un quadrilatero armonico

- $RB \cdot AC \overset{\shortparallel}{} RC \cdot AB$
- le tg da R e A si incontrano su BC
- le tg da B e C si incontrano su RA

$tg_\Gamma A \cap tg_\Gamma R = U \in BC$

$T = AD \cap EF \Rightarrow ET = TF$

$\Rightarrow (S, T, E, F) = -1$

$\Rightarrow (SA_1, TA_1, EA_1, FA_1) = -1$

$(R, A, A'', A')_\Gamma = -1$

$\Rightarrow$ quad. arm. $\Rightarrow$ le tg a Γ in R e A si incontrano su $A'A''$

$\Rightarrow U \in A'A'' \quad \Rightarrow U = Q$

$\Rightarrow pol_\Gamma(Q) = AR$

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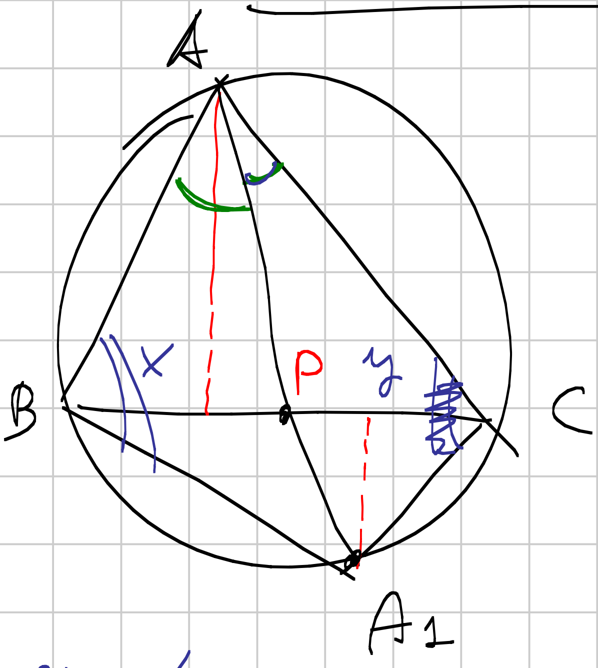
1. Ceva Trigonometrico: $\quad B\hat{A}A_2 = ?$

$C\hat{A}A_2 = ?$

$\sin(B\hat{A}A_2) = ?$

$\sin(C\hat{A}A_2) = ?$

2. Coord. triliniare // Coord. baricentrice



$AB \cdot BA_1 = AC \cdot CA_1$

$S_{ABA_1} = S_{ACA_1}$

$S_{ABP} + S_{BPA_2} \qquad S_{APC} + S_{CPA_1}$

$\frac{1}{2} AB \cdot BA_2 \sin x = \frac{1}{2} AC \cdot CA_2 \cdot \sin y$

1. ec. cercului $\quad ayz + bxz + cxy = 0$

2. pt med la BC $\quad [0, c, b] = D$ $\qquad \begin{cases} by - cz = 0 \\ ayz + bxz + cxy = 0 \end{cases} \Rightarrow A_1$

pt med la AC $\quad [c, 0, a] = E$

pt med la AB $\quad [b, a, 0] = F$

$AA_2: \; cy - bz = 0$

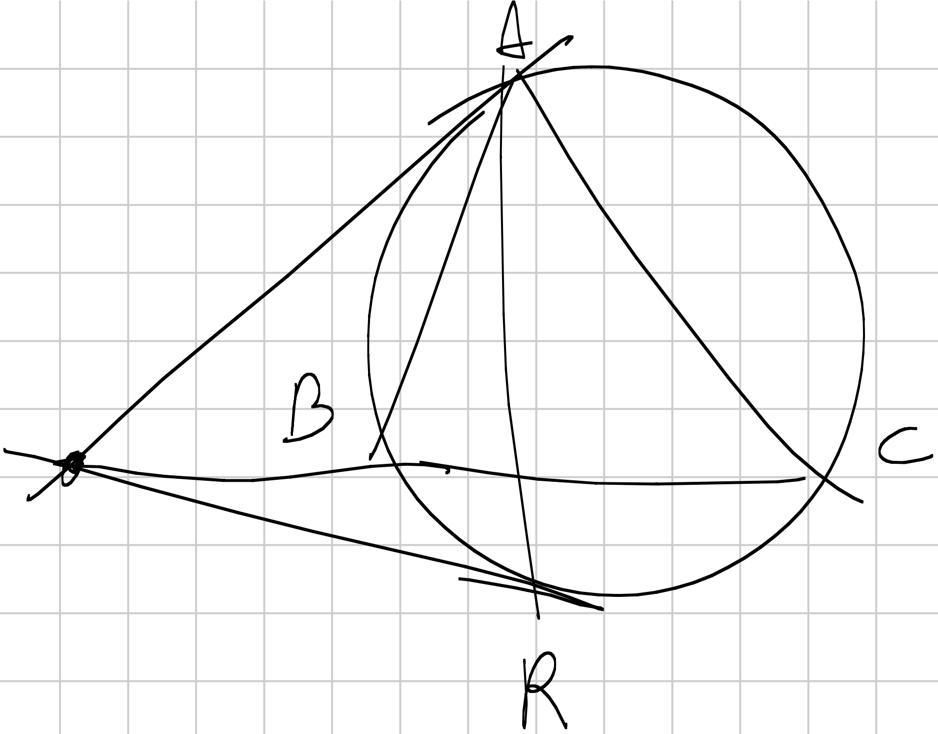
$\boxed{\text{baricentrice}}$

$a^2yz + b^2xz + c^2xy = 0$

$[0, 1, 1]$

$[1, 0, 1]$

$[1, 1, 0]$



$AB \cdot CR$
$=$
$AC \cdot BR$

AR simm.