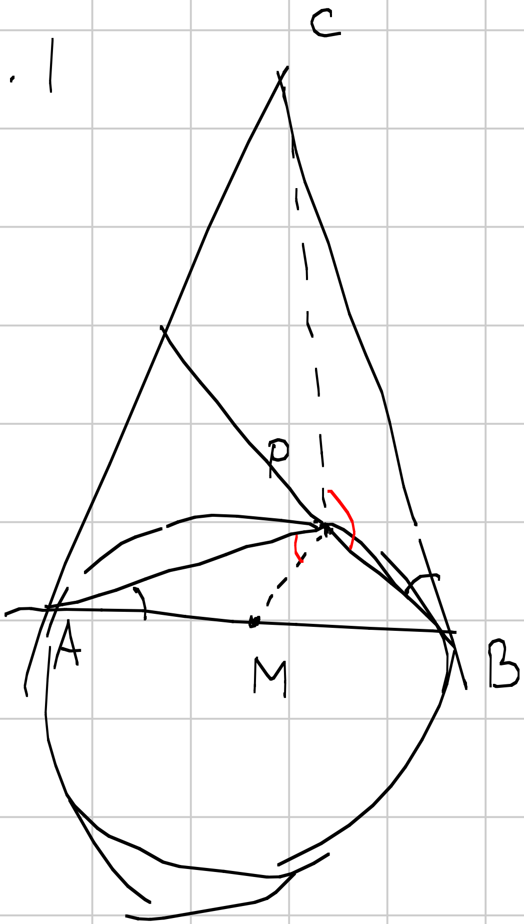
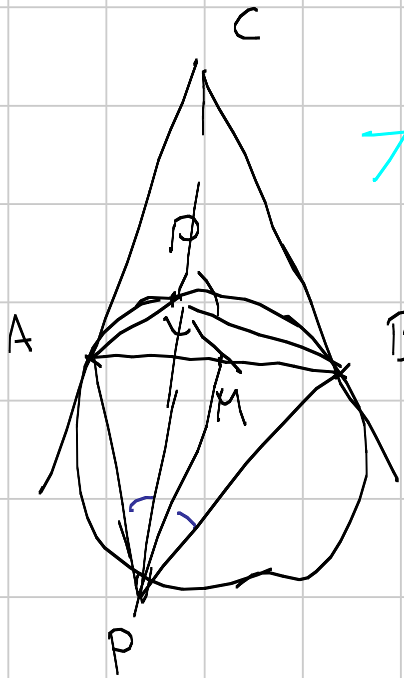
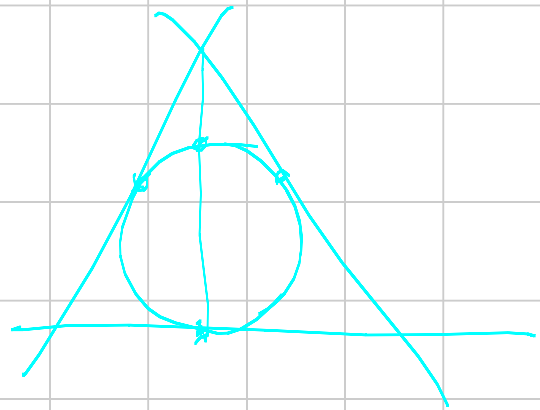
GEOMETRIA $\frac{7}{2}$

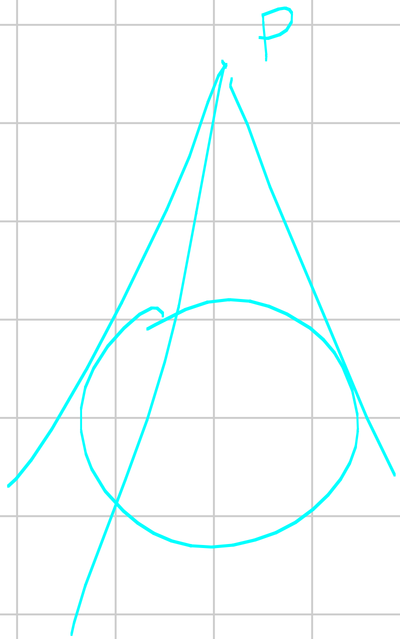
PROB. 1

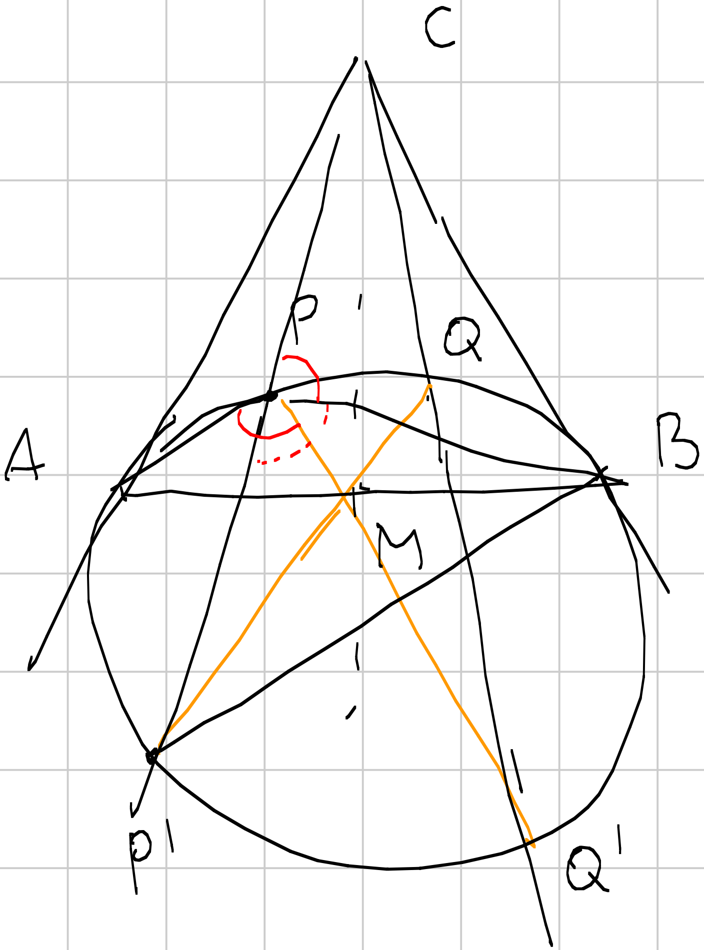


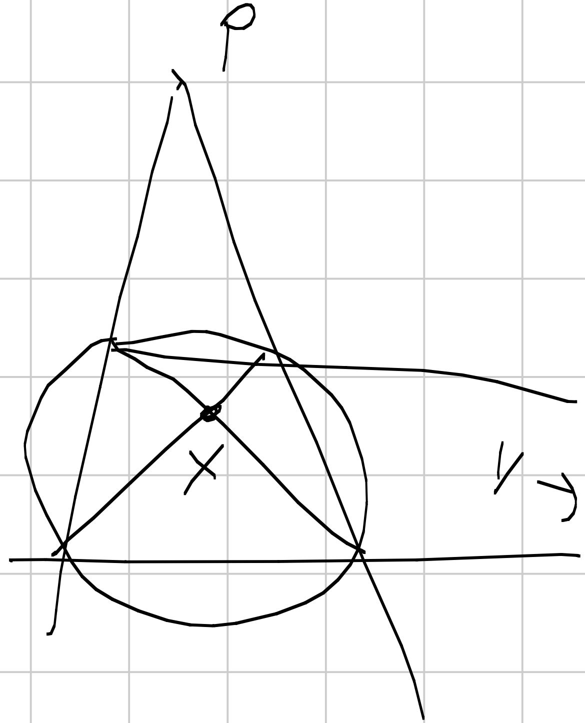
$) +) = \pi$









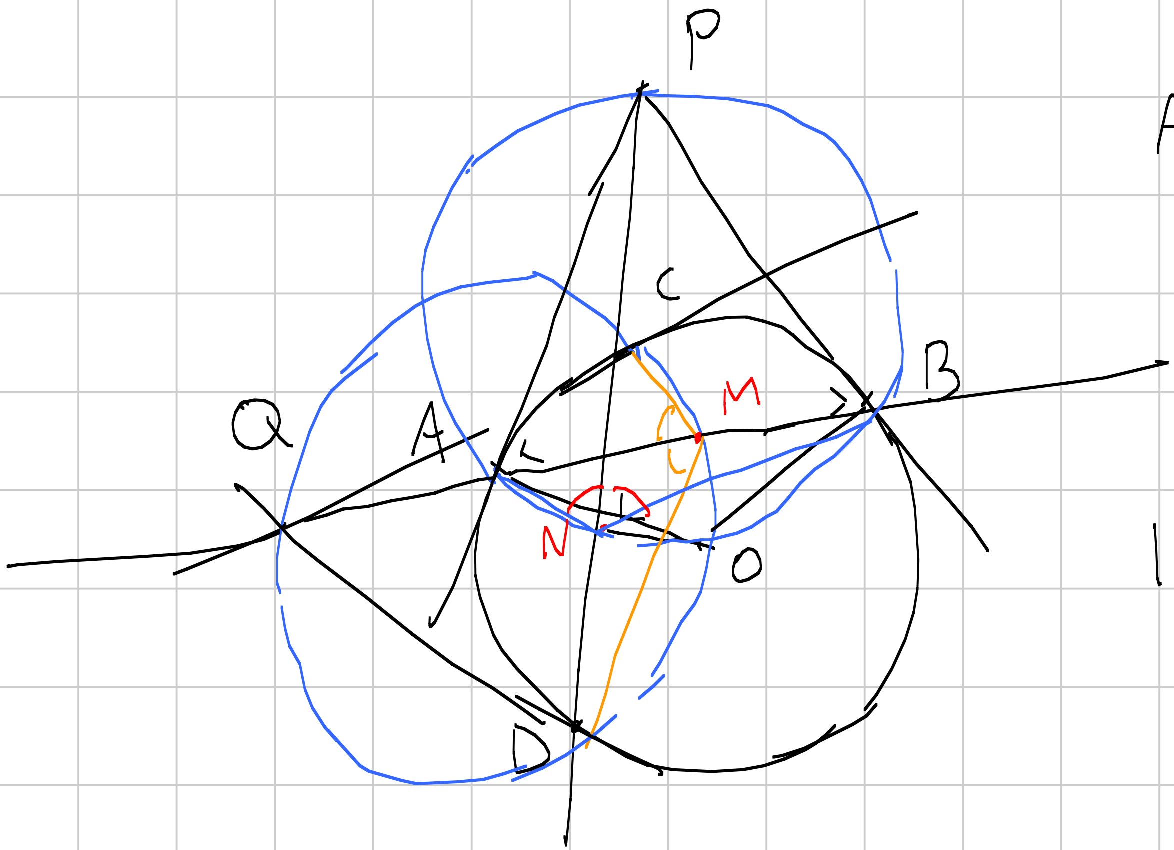


$PQ' \cap QP' = M$

$X \in \mathrm{pol}\ P$

$AQ' = BP' \Rightarrow A\hat{P}Q' = B\hat{P}P'$

$A\hat{P}M = \pi - B\hat{P}Q$ $\square$



ABCD é armonico

P, C, D allineati

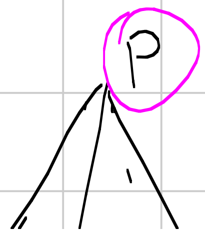
$\Downarrow$

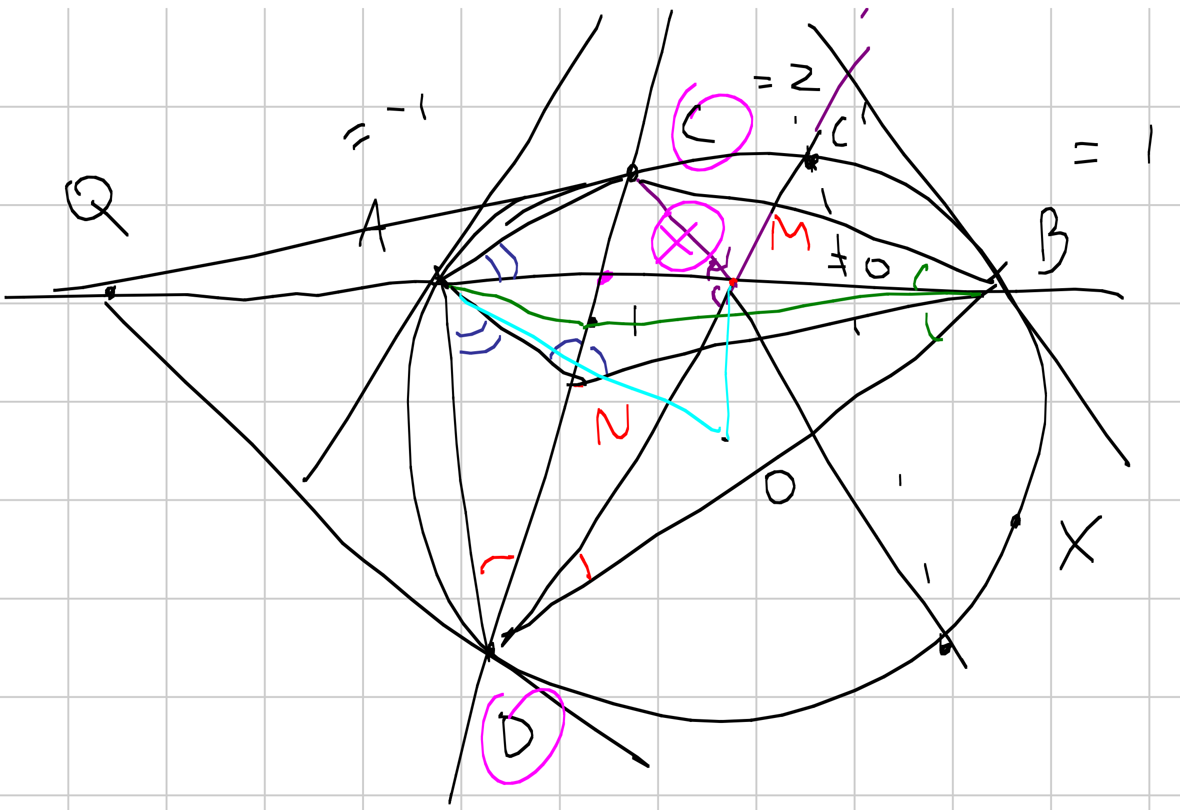
le loro polari concorrono

$\Downarrow$

Q, A, B allineati

$A\hat{N}P = P\hat{N}B$ $C\hat{M}Q = D\hat{M}Q$





$MC \cdot MD = MA^2$

$\widehat{ADP} = \widehat{BDM}$

lemma della simmediana

$AC \cdot BD = CB \cdot AD$

$$\frac{AC}{AD} = \frac{C1}{D1} = \frac{BC}{BD}$$

AA, AC, AB, AD

$(D\,C\,X\,P) = -1$

$(A,B,C,D) = -1$

ABCD quad. armonico

$A = -1$

$B = 1$

$C = 2$

$D = \frac{1}{2}$

$A\hat{P}R \sim A\hat{C}B$

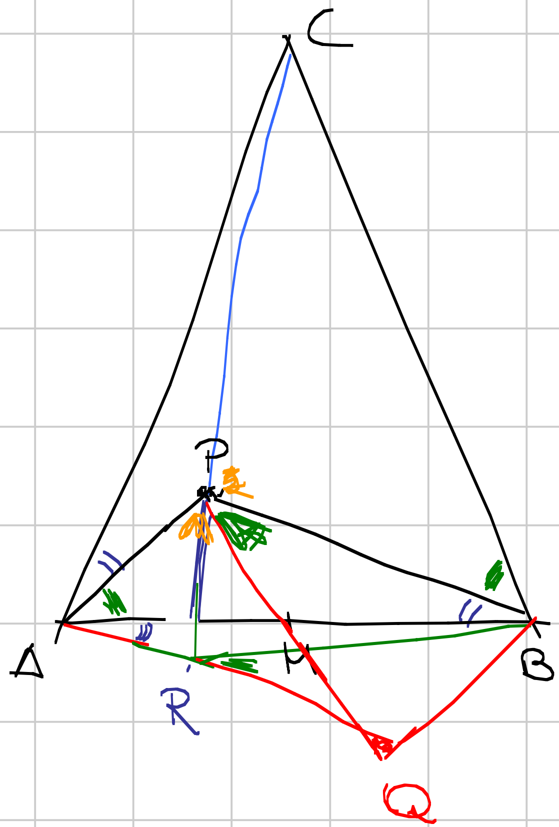
$$\frac{AR}{AB} = \frac{AP}{AC} \Longrightarrow A\hat{R}B \text{ e } A\hat{C}P$$

sono simili

RQB? è trap is.

$$M\hat{P}B = B\hat{R}Q = 180 - A\hat{R}B$$

$$= 180 - A\hat{P}C$$



$b = 2a\cos\alpha$

$\hat{APM} + \hat{BPC} = 180^\circ$

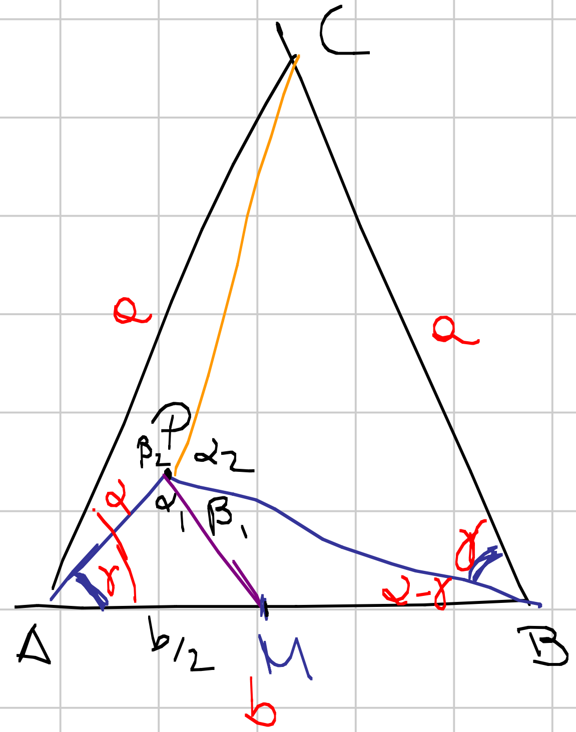
$$\boxed{\sin\alpha_1 = \sin\alpha_2}$$

$\alpha_1 + \alpha_2 = 180$

$\alpha_1 = \alpha_2 \implies$

$\beta_1 = \beta_2$

$\beta_1 + \beta_2 = 180$



$$\frac{AM}{\sin\alpha_1} = \frac{PM}{\sin\gamma}$$

$$\frac{AP}{\sin\alpha-\gamma} = \frac{b}{\sin\alpha}$$

$$PM^2 = \left(\frac{b}{2}\right)^2 + AP^2 - 2\,\frac{b}{2}\,AP\cos\gamma$$

$$\frac{a}{\sin\alpha_2} = \frac{CP}{\sin\gamma}$$

$$CP^2 = a^2 + AP^2 - 2a\,AP\cos\alpha-\gamma$$

$$\sin\alpha_2 = \frac{\cancel{\sin\gamma}\, a}{CP} \overset{?}{=} \frac{\frac{b}{2}}{PM} \cancel{\sin\gamma} = \sin\alpha_1$$

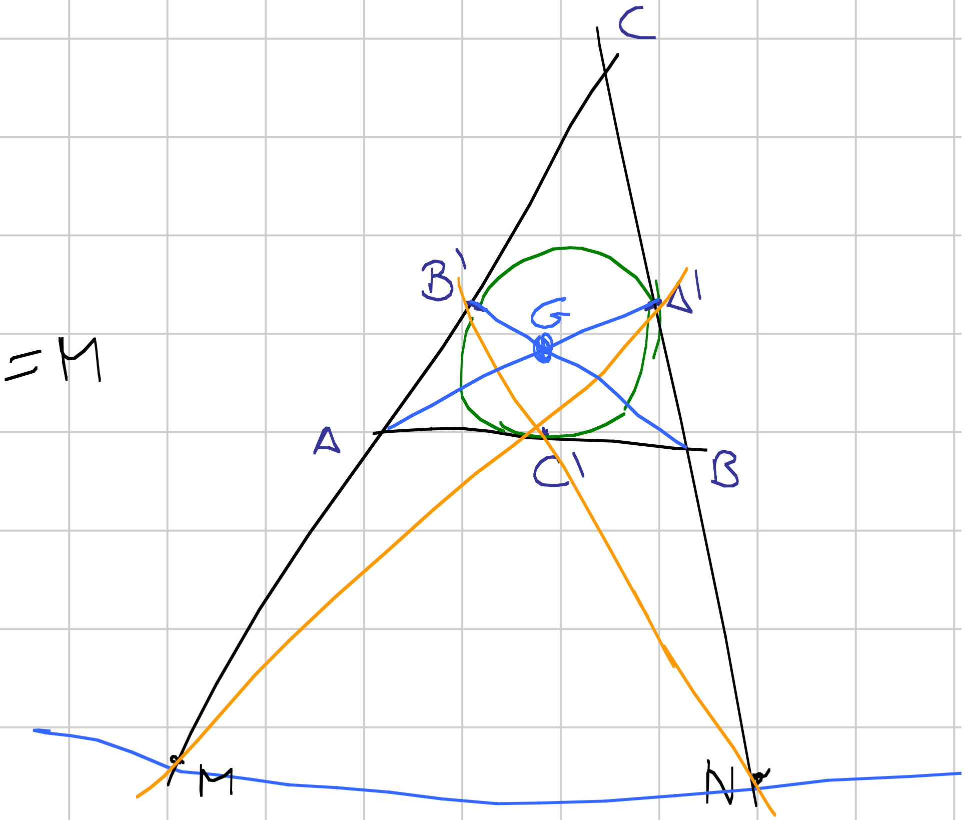
$$PM^2 = CP^2 \cos^2\alpha$$

$B' \longrightarrow AC$

$B \longrightarrow A'C'$

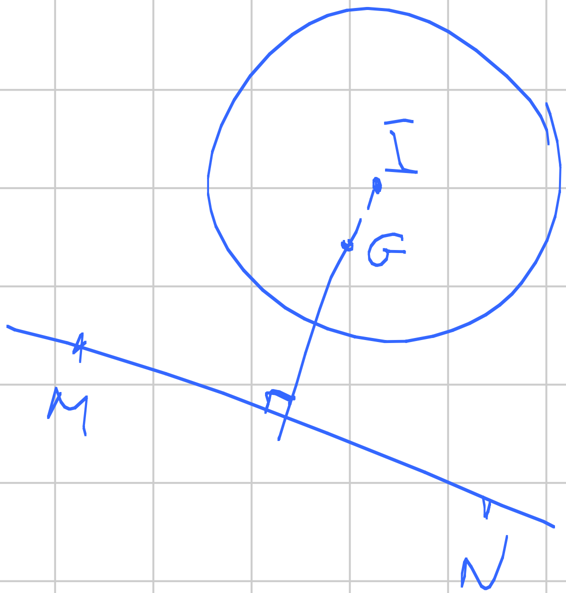
$BB' \longrightarrow AC \cap A'C' = M$

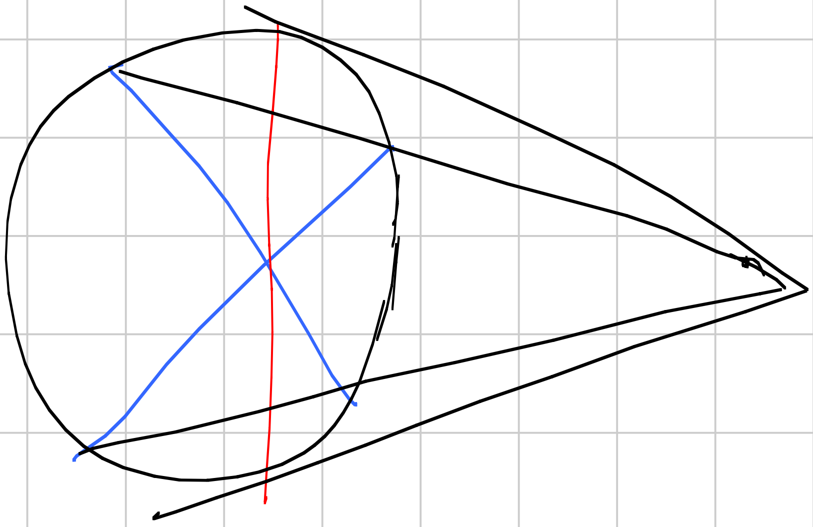
$AA' \longrightarrow N$



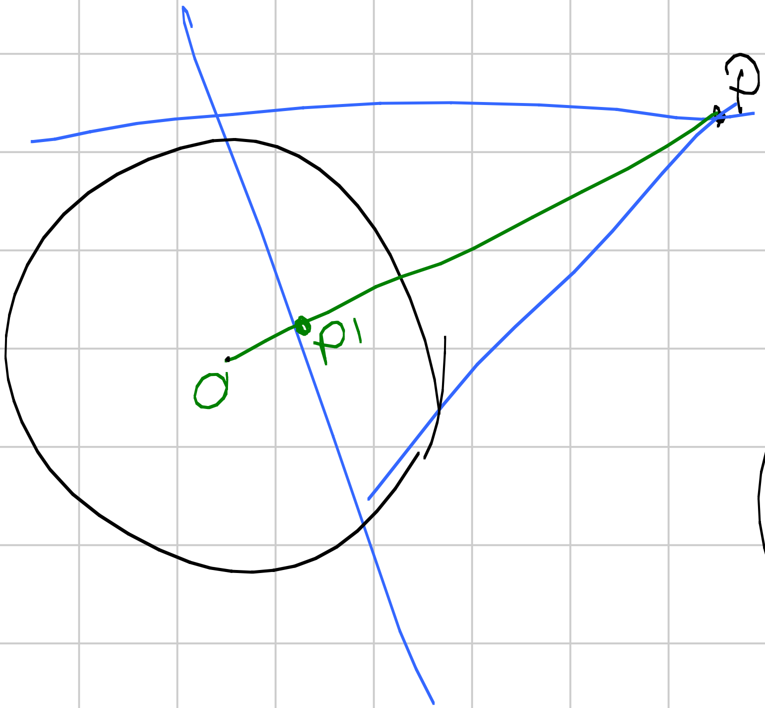
MN è pol di G

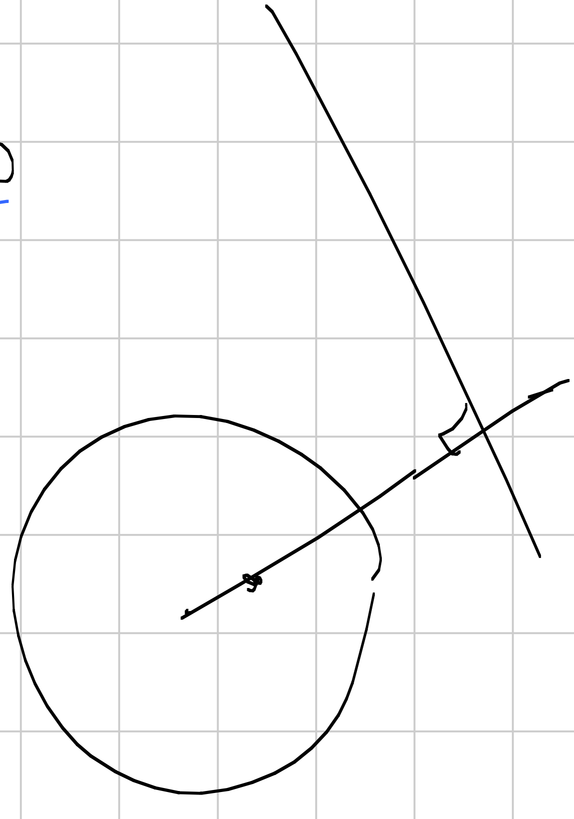
$MN \perp IG$

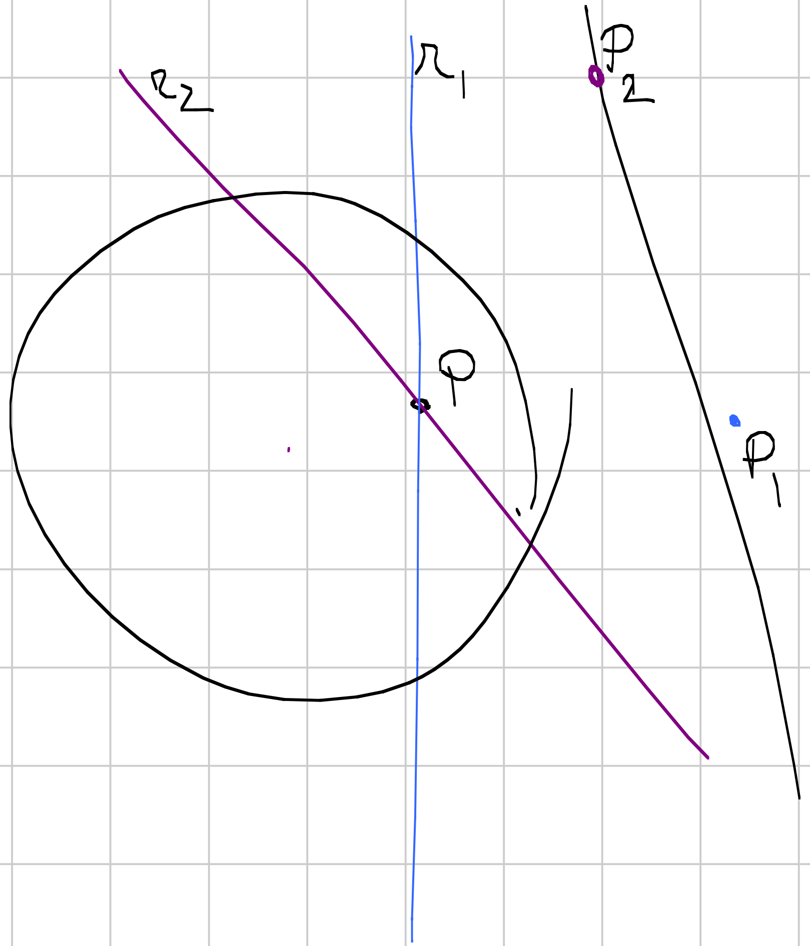




$$OP' = \frac{r^2}{OP}$$







pd (intersez)

= intersez (pdori)

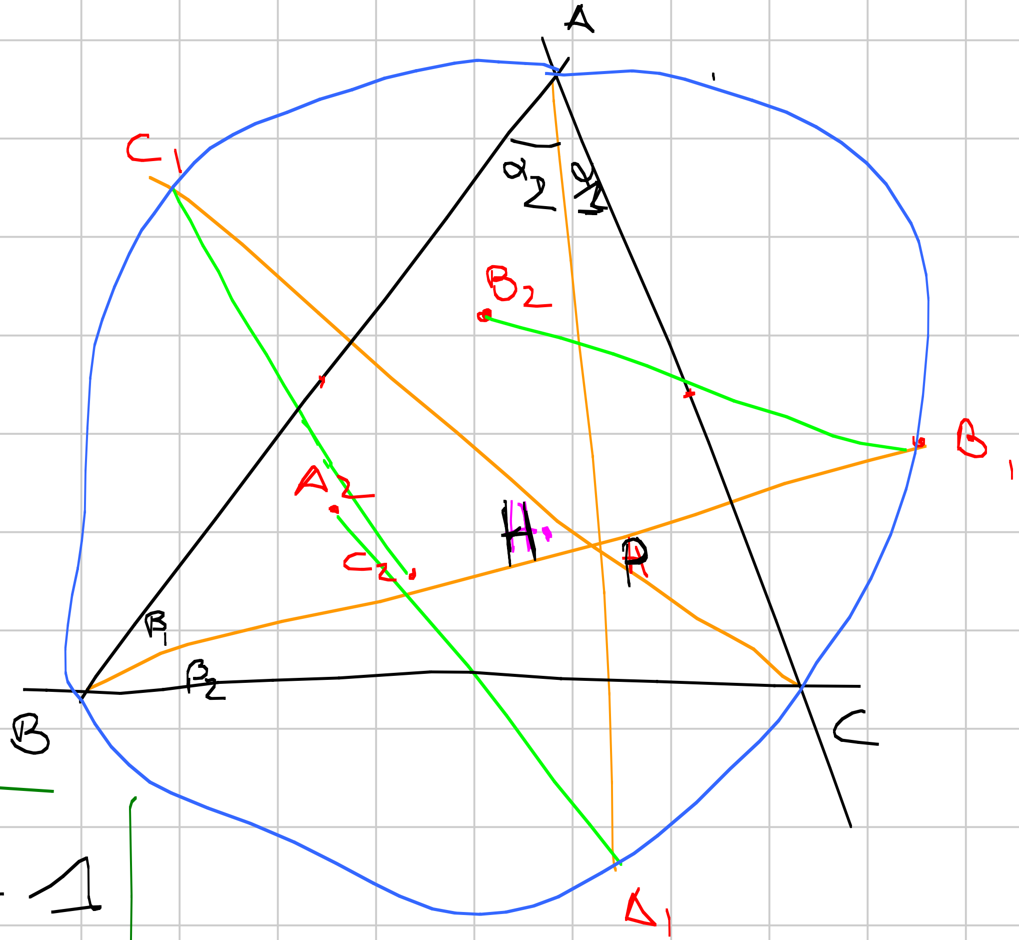
$C_2 \in \text{circ } BHA$

$$\frac{\sin\alpha_1}{\sin\alpha_2} \cdot \frac{\sin\beta_1}{\sin\beta_2} \cdot \frac{\sin\gamma_1}{\sin\gamma_2} = 1$$

$$\sin\alpha_1 = \left(\frac{2R}{A_1C}\right)^{-1} = \frac{A_1C}{2R}$$

$$\frac{A_1C}{A_1B} \cdot \frac{BC_1}{C_1A} \cdot \frac{AB_1}{B_1C} = 1$$

$$\boxed{\frac{BA_2}{A_2C} \cdot \left(\frac{BC_2}{C_2A}\right)^{-1} \cdot \frac{CB_2}{AB_2} = 1}$$



$A_2' \quad B_2' \quad C_2'$

$$\frac{A'C_2'}{C_2'B'} \cdot \frac{B'A_2'}{A_2'C'} \cdot \frac{C'B_2'}{B_2'A'} = 1$$

$$A'C_2' = AC_2 \cdot \frac{r^2}{HA \cdot HC_2}$$

$$C_2'B' = C_2B \cdot \frac{r^2}{HC_2 HB}$$

$$\frac{A'C_2'}{C_2'B'} = \frac{AC_2}{C_2B} \cdot \frac{HB}{HA}$$