A4(?) ADVANCED L.S.(D)

Note Title 08/09/2022

INVOLUZIONI

$\varphi \qquad \varphi(\varphi(A)) = A \quad \forall A \in C$

φ SIA PROIETTIVA

$(A, B; C, D) = (\varphi(A), \varphi(B); \dots)$

$\varphi(\varphi(A)) = A$

$(A, \varphi(A); B, \varphi(B)) = (\varphi(A), \varphi(\varphi(A)); \varphi(B), \varphi(\varphi(B)))$

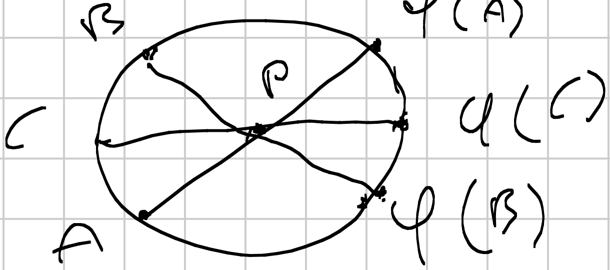
$=$

$(A, \varphi(A); \varphi(\varphi(B)), \varphi(B))$

$\Longrightarrow$

$B = \varphi(\varphi(B))$

δ CONICA



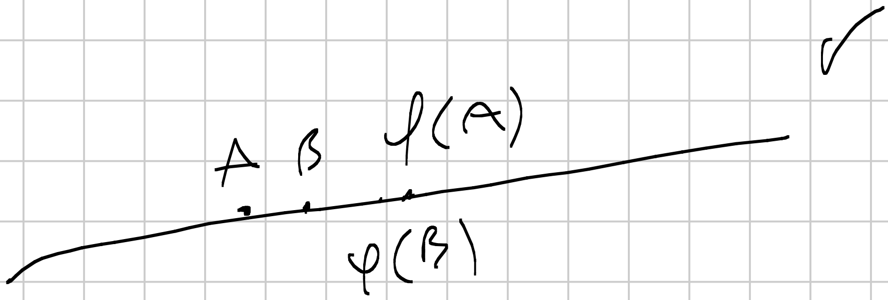
$\overline{X \varphi(X)}$ PASSA UN PUNTO FISSATO

$\boxed{A, \varphi(A), B, \varphi(B)}$

DATA UNA TRASFORMAZIONE

$$(A, B; C, X) = (\varphi(A); \varphi(B); \varphi(C), \varphi(D))$$

LEMMA 2

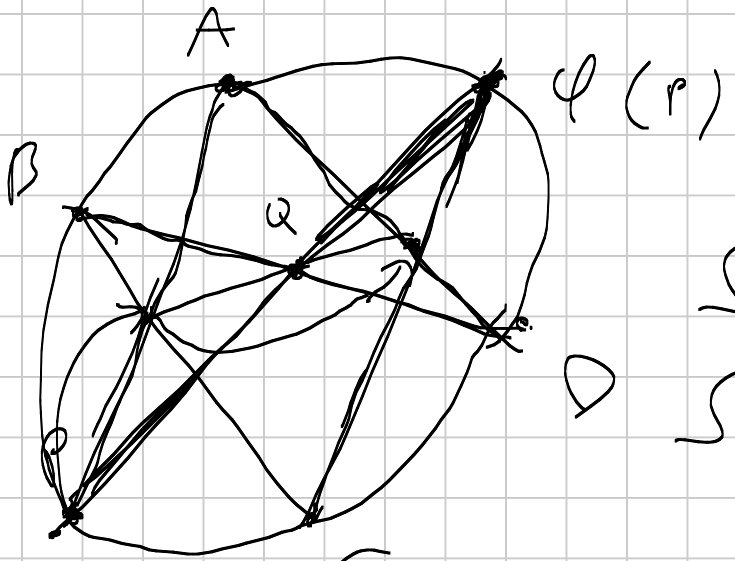


$P_\infty \to A \qquad A, \sqrt{AB \cdot A\varphi(B)}$

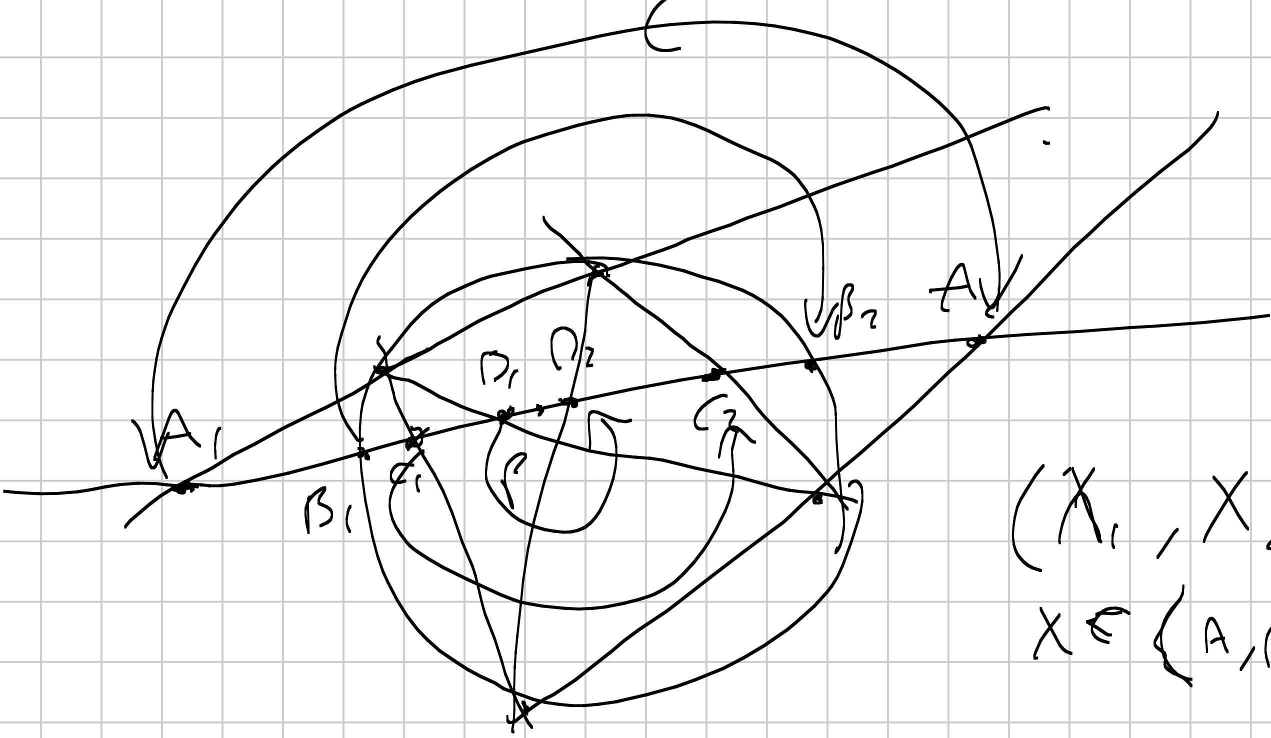
$B \qquad \varphi(B)$

$$\boxed{\begin{array}{l} B \leftrightarrow \varphi(B) \\ A \leftrightarrow P_\infty \end{array}}$$

DIT

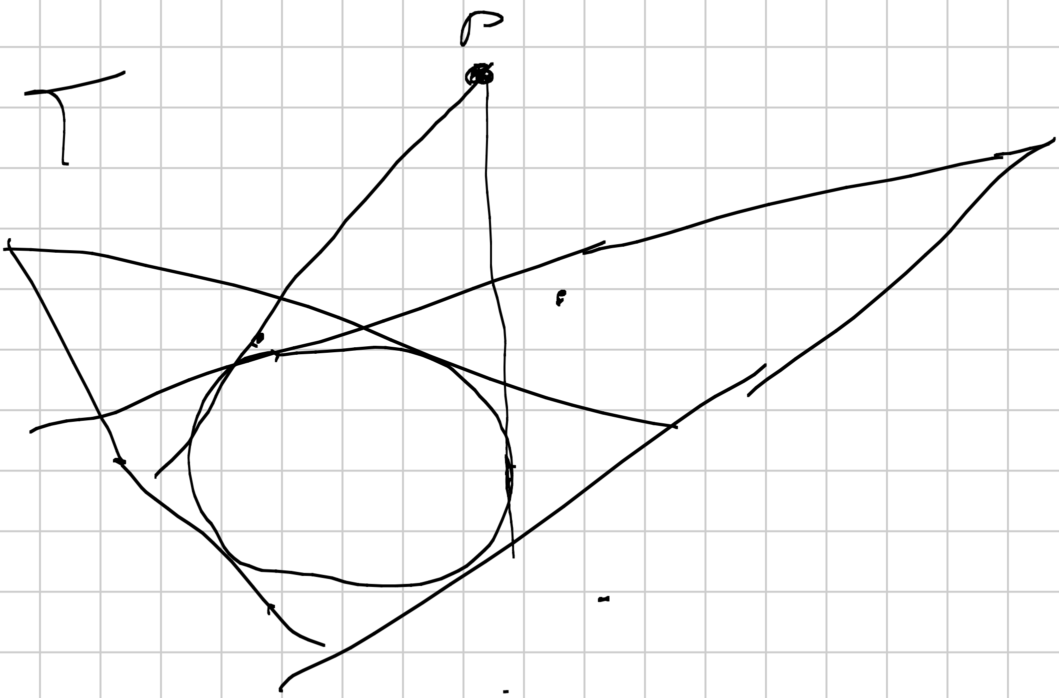


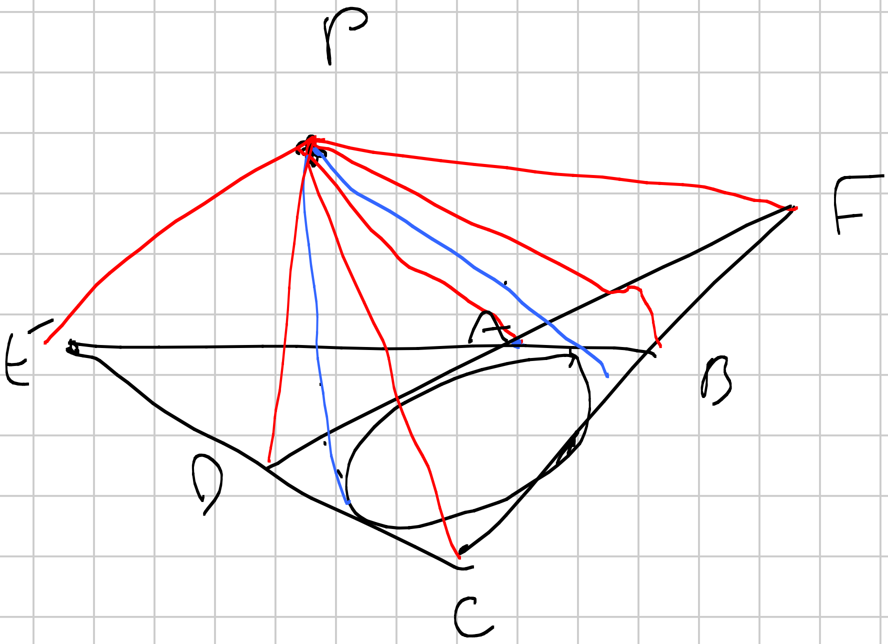
$\Omega_1(\ ),\ \Omega_2(\ ),$
$\Omega_3($



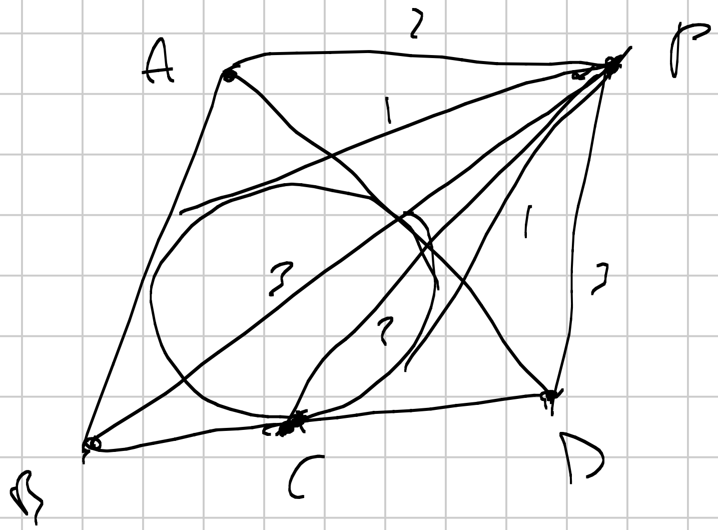
(X_1, X_2)
$X \in \{A, B, C, D\}$

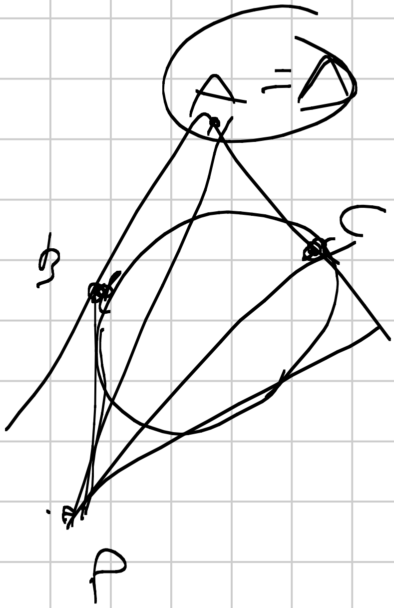
DDIT



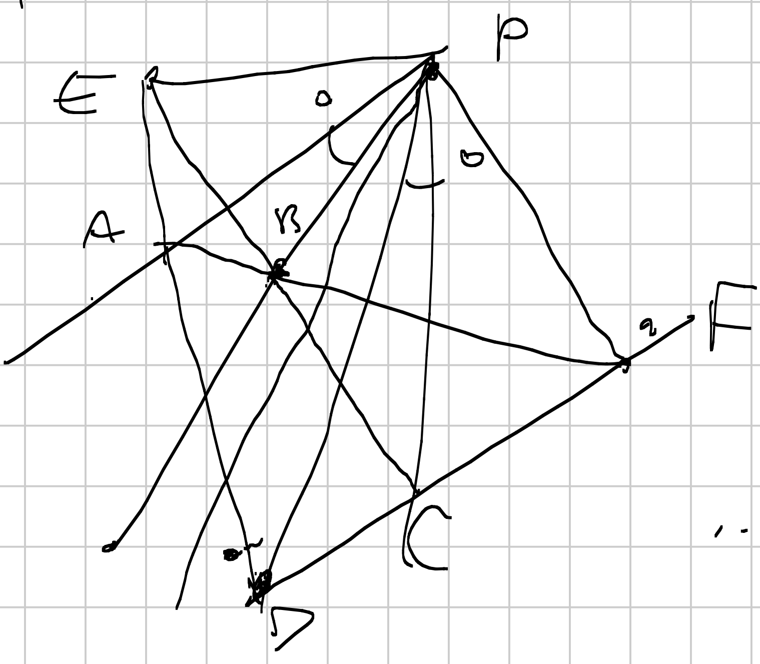


(PE, PF), . . .





ISOGONALITY LEMMA

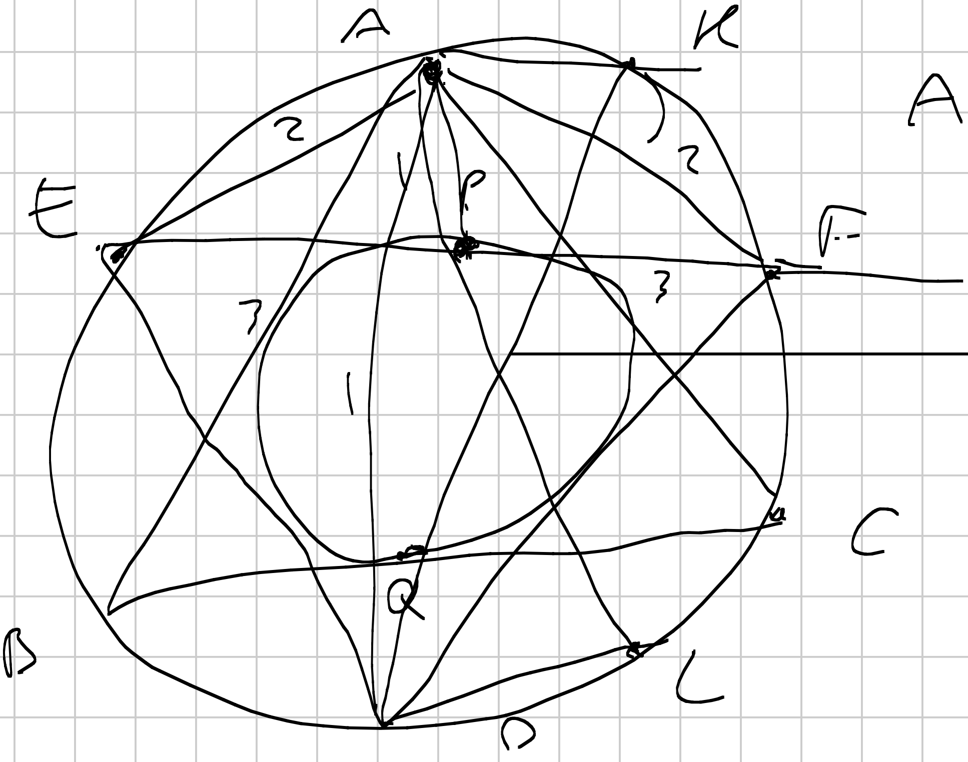


Pφ()

PA ↔ PC
PB ↔ PD

PE ↔ PF

. . .



A qps

AK, EF,
DC, DL
CONCORRONO

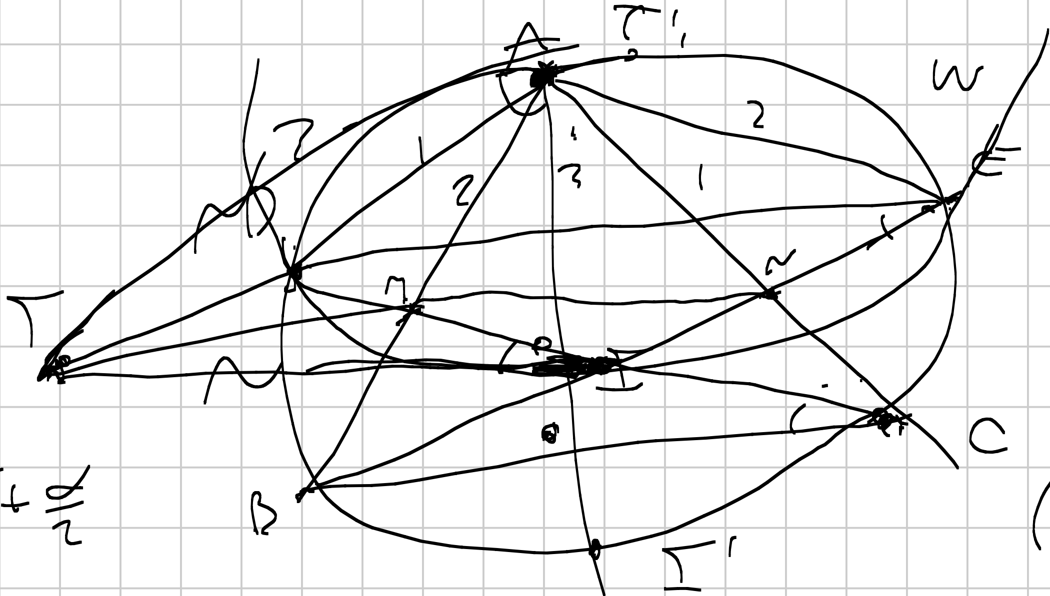
A

φ $\left(\Omega^{-1} \circ \varphi \circ \Omega\right)$

Ω.

(E, F), (B, C), (D, L)

SONO COPPIE DI INVOLUZIONE



TI // BC

(D, C)

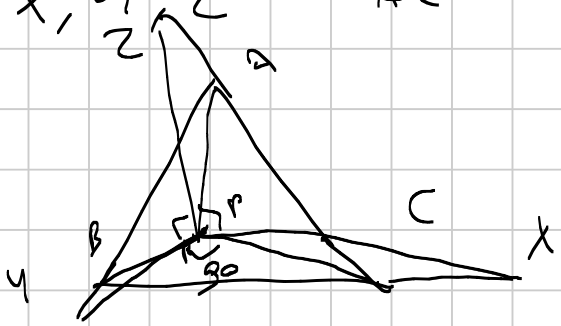
(B, E)

(I' T)

$\gamma + \frac{\alpha}{2}$

$(AT, AI), (AN, AM), (AE, AD)$

SIA P UN PUNTO, $\overset{\triangle}{ABC}$ TRIANGOLO,
X, Y, Z PUNTI SULLE RETTE
BC, AC, AB T.C. $A\hat{P}X = B\hat{P}Y = C\hat{P}Z = 90°$
DIMOSTRA
X, Y, Z ALLINEATI

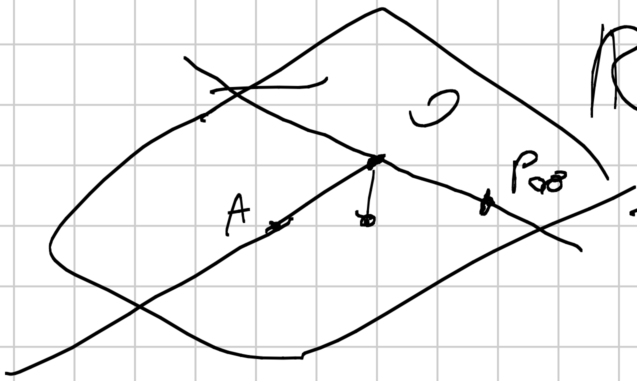


SIA ω LA CIRCOSCRITTA AD
$\overset{\triangle}{ABC}$, ω_A L'A-EXSCRITTA, LE
TANGENTI COMUNI DI ω, ω_A
INTERSECANO BC IN P, Q
DIMOSTRA $P\hat{A}B = C\hat{A}Q$

PIANO PROIETTIVO

$\mathbb{R}^2$, $\mathbb{R}^2 + \{\infty\}$

$\mathbb{P}^2\mathbb{R}$

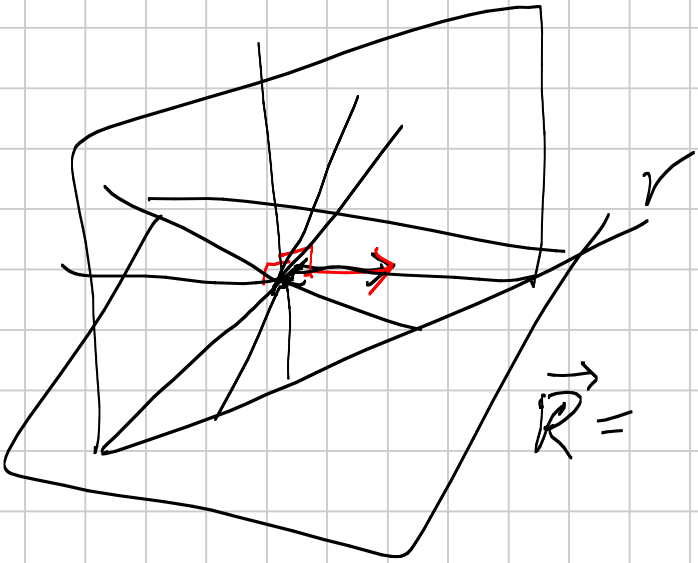


$\mathbb{R}^3$

$z = 1$

$z = 0$

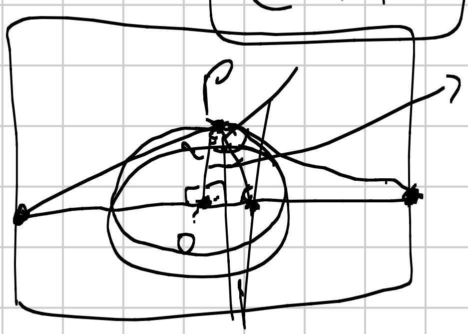
$A = (a : b : c) = \lambda (a : b : c)$



$0 = ax + by + cz$

$\vec{R} = (a : b : c)$

$\boxed{\vec{A} \times \vec{B}}$ $\boxed{\vec{C} \times \vec{D}}$



$\mathbb{P}^2\mathbb{C}$ 6 DIM DI $\mathbb{C}^3$

4 DIM DI $\mathbb{P}^2\mathbb{C}$

$\in \mathbb{C}$

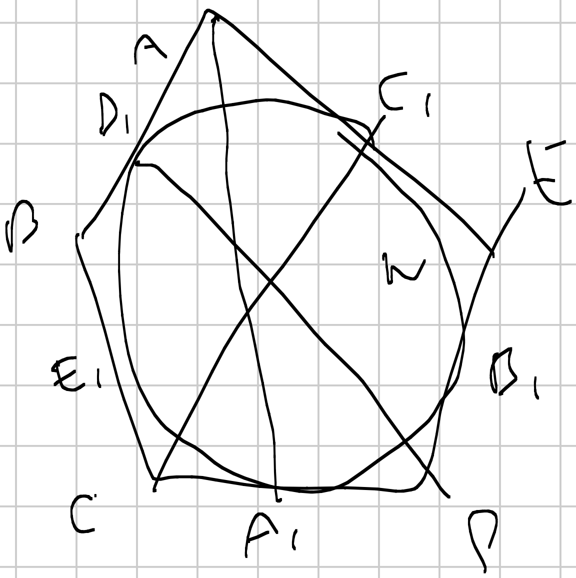
$\lambda(a:b:c)$

OMOGRAFIA

E' UNA TRASFORMAZIONE PROIETTIVA

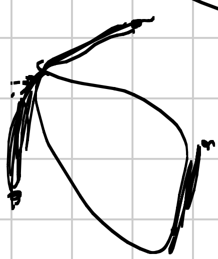
$\mathbb{P}^2\mathbb{C}$: $\mathbb{C}^3$

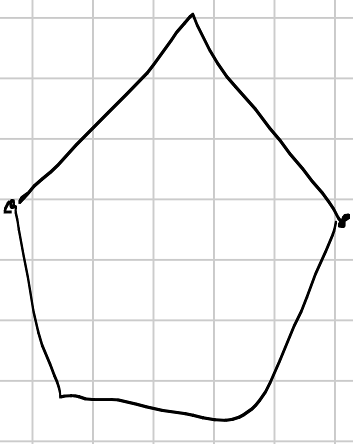
$$(x : y : z) \longrightarrow (ax+by+cz : dx+ey+fz : gx+hy+iz)$$



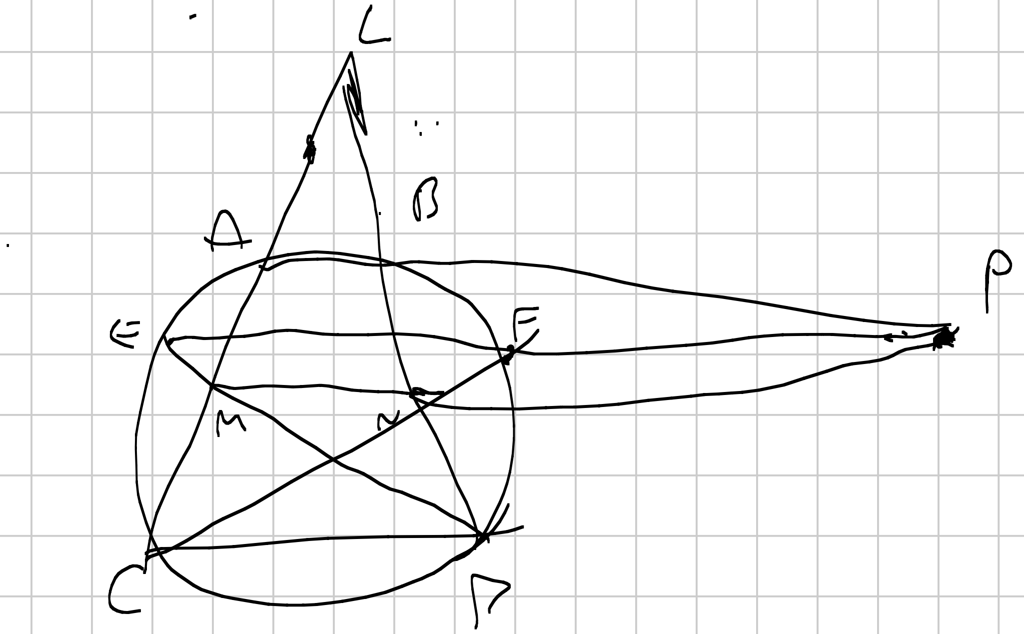
W

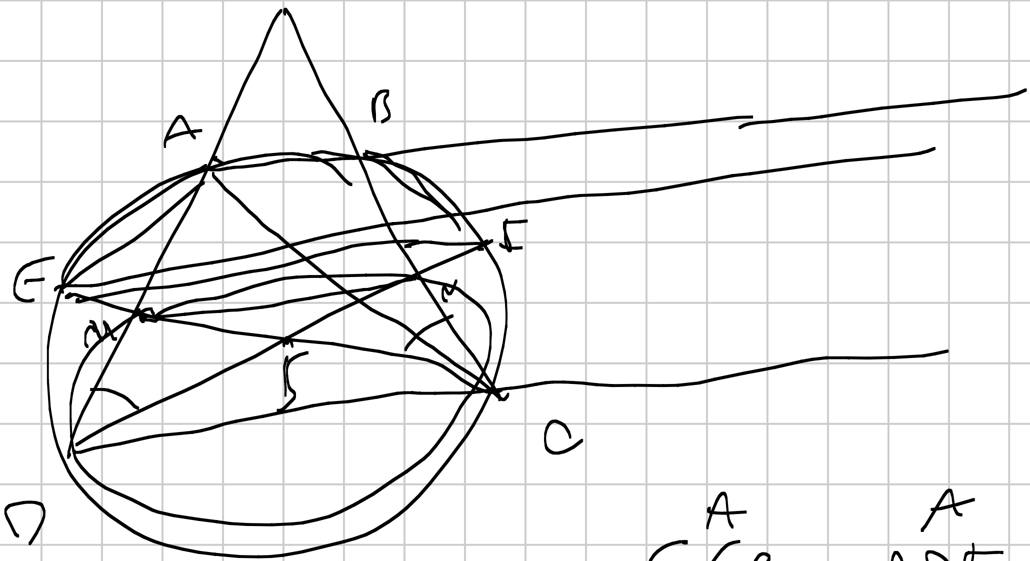
AA1, BB1, CC1,
DD1, EE1





1° 1 PUNTO DENTRO LA CIRCONFERENZA IN QUALSIASI PUNTO DENTRO LA CIRCONFERENZA E LA CIRCONFERENZA IN SE STESSA





$E\hat{C}B = A\hat{D}F$

MOVING POINTS

$$\deg(A(x):B(x):C(x)) = \max(\deg A, \deg B, \deg C)$$

in $\mathbb{P}^2\mathbb{C}$.

$$\left(\frac{1-t^2}{1+t^2}; \frac{2t}{1+t^2} : 1\right) \quad \text{IN} \quad \mathbb{R}$$

$$= \left(1-t^2 : 2t : 1+t^2\right)$$

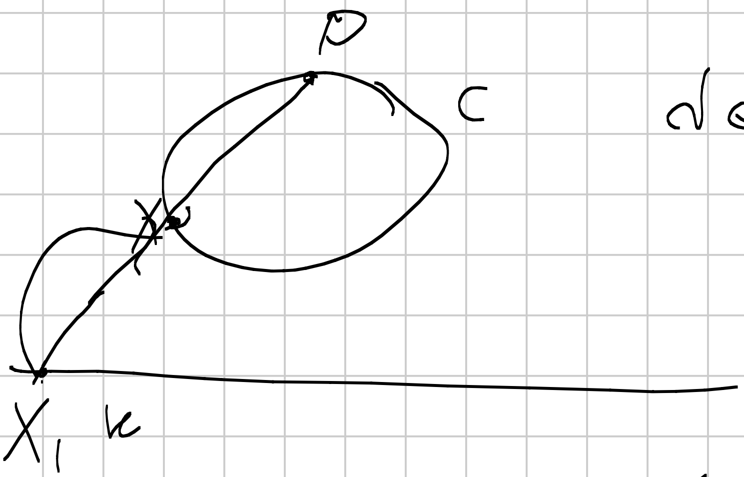
$\deg A \quad \deg B \qquad A \times B$

$\deg(AB) \leq \deg A + \deg B - k$

k CONTA IL NUMERO DI VOLTE $A=B$

$\vec{A} \times \vec{B} = \vec{0} \qquad (x-t) \,\|\, 1$

CONIC DOUBLING



$$\deg(X_1) = \frac{\deg(X)}{2}$$

$$\Phi : (x:y:z) \to (xz : yz : x^2+y^2)$$

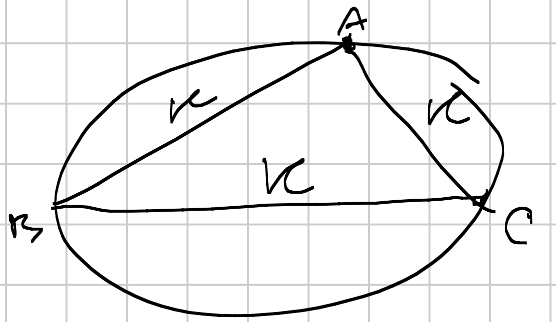
SE CENTRATA NELL'ORIGINE

r

p

$$\boxed{ax + by + cz = 0}$$

DI GRADO r



$$\frac{r + r - r}{2} = \frac{r}{2}$$

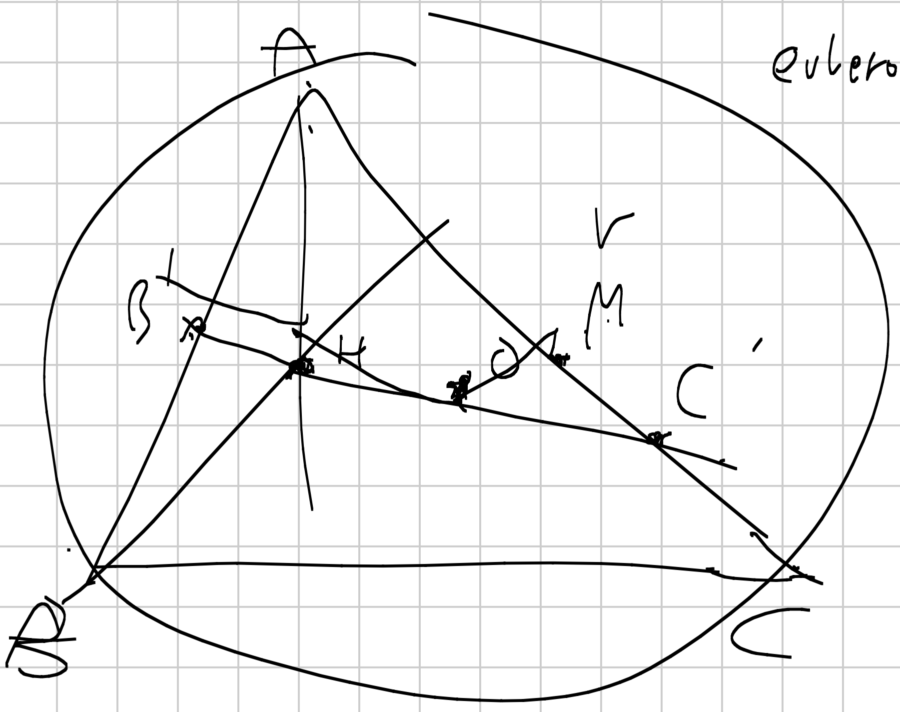
$$r - \frac{r}{2} + 0 = \frac{r}{2}$$

PA r/0 GRADO

3 PUNTI , 3 RETTE

$$\left(\begin{matrix} A \\ B \\ C \end{matrix} \right| = 0$$

A + B + C + 1



eulero $A'B'C' \parallel BC$

$\deg C = \deg 1$

$\deg H = 1$

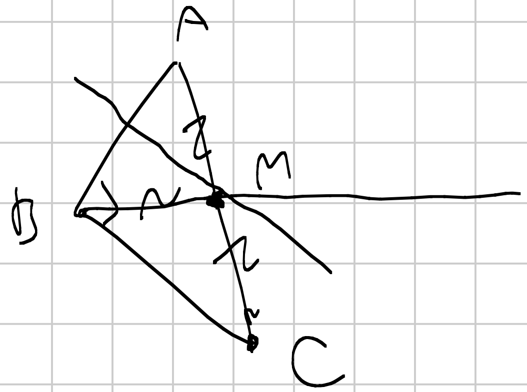
$\deg O = 1$

$\deg OH = 2$

$\deg(OH \times \{\infty\}) = 1$

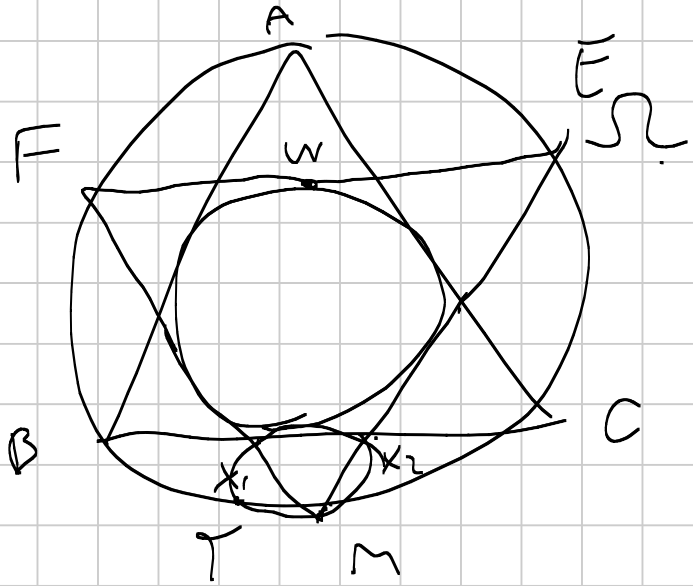
$C \to \infty$

$\deg(BC \cap \{\infty\}) = 1$



$\varphi($

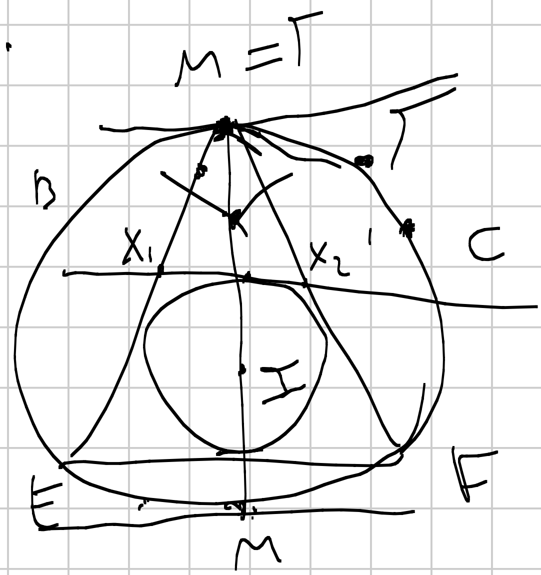
$\varphi(\varphi(P_\infty)) = P_\infty$



M, X_1, X_2, T
CICLICI
CON T PUNTO
DI CONTATTO
MISTILINEA

$X_1 \to \infty$

P



$\deg Q = 2$

$\deg NQ\ (1)$

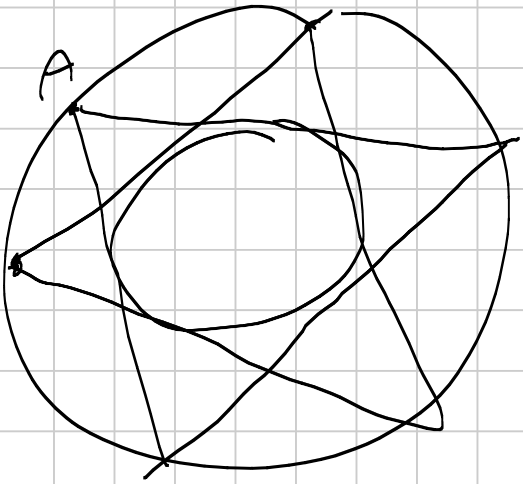
X_2, X_1 HANNO $\deg = 1$

$\deg T = 2$

$\deg MT = 1$ Γ' DI MT

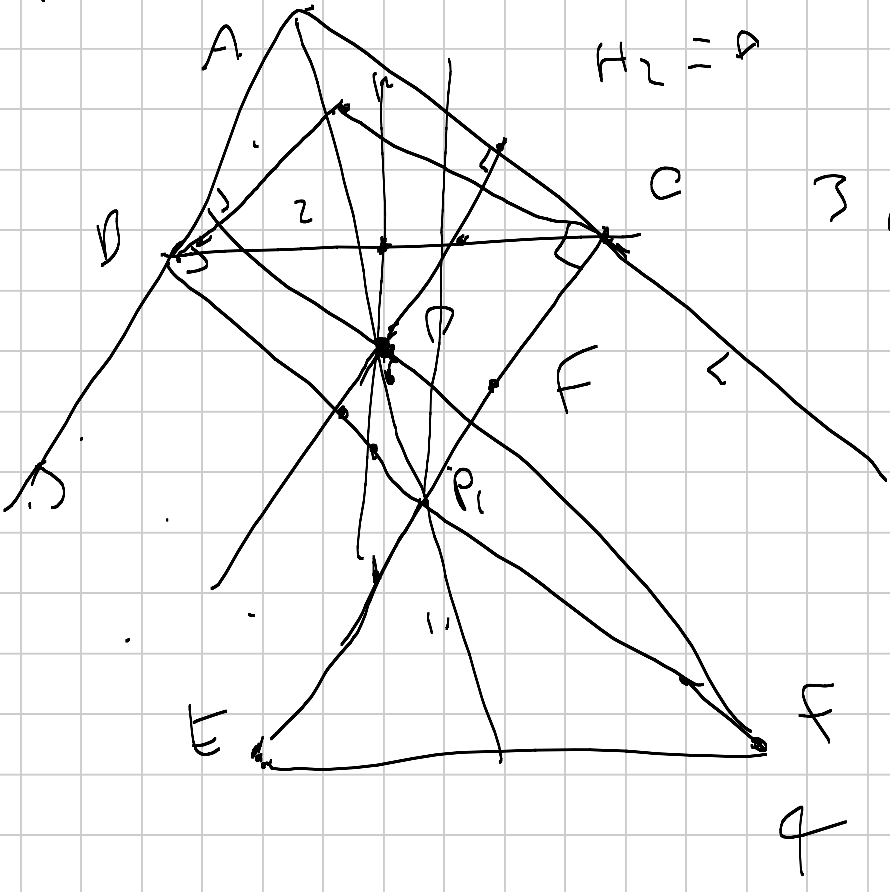
E' deg

$1+1+1+1 = 4$ CASI



SONDAT

$\hat{ABC}$, $\hat{DEF}$ SONO ORTOLOGICI E PROSPETTICI ALLORA I DUE CENTRI DI ORTOLOGIA E IL PERSPETTORE SONO ALLINEATI



$H_2 = D$

$\hat{ABC}$

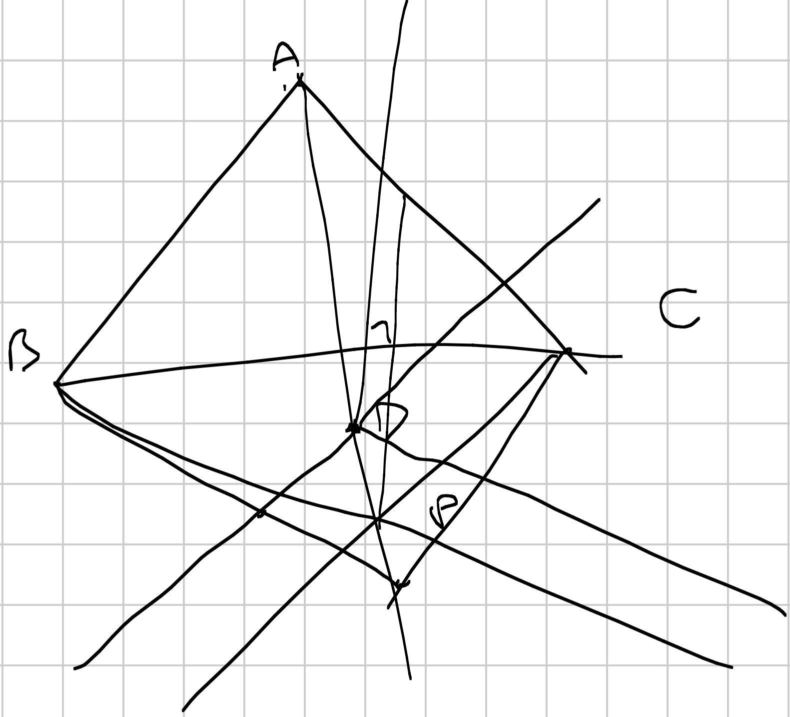
3 RETTE PER $\hat{ABC}$

D

$\deg DE = 1$

$(\deg H_2) = 2$

$\deg H_1 = 1$



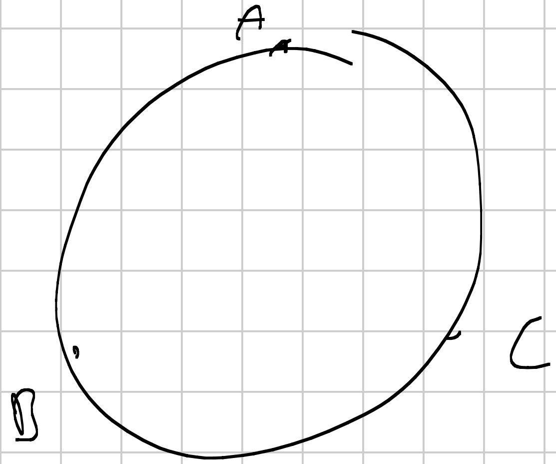
A , B

M ∈ A, B

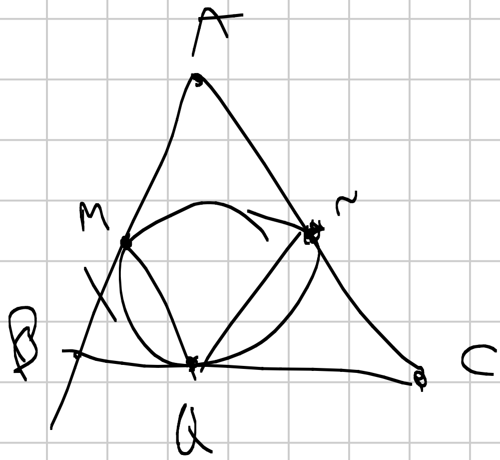
M A = M B

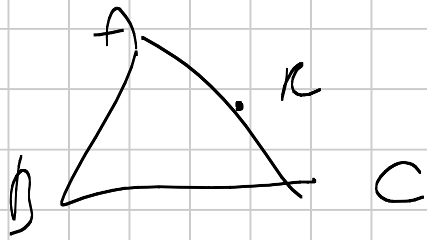
dey A + d · d B − R

AB LA RETTA ALL'INFINITO



deg 2





$\mathbb{P}^2\mathbb{C}$ SI MUOVE SU UNA CURVA DI GRADO n CON GRADO nr

$p \in X \longrightarrow Y \qquad n \to 1$

G5 2016 G4 2021

$A\hat{B}C$ I INCENTRO $\to I$ DI ANGLE A, B, C EXCENTRO

N È BIC X(5), NBC, X(5) N_1

NN_1 // EULERO $A\hat{B}C$