

Dato la conica Γ :

$$x^2 - 2xy - 3y^2 - 4y + 1 = 0$$

si verifichi che è un'iperbole e se ne trovino gli asintoti.

$$A = \begin{pmatrix} 1 & 0 & -2 \\ 0 & 1 & -1 \\ -2 & -1 & -3 \end{pmatrix}$$

$$|A| = \begin{vmatrix} 1 & 0 & -2 \\ 0 & 1 & -1 \\ -2 & -1 & -4 \end{vmatrix} = \begin{vmatrix} 1 & -2 \\ -2 & -4 \end{vmatrix} \neq 0$$

non deg.

$$A_{\infty} = |M_{\infty}| = -3 - 1 < 0 \text{ ip.}$$

$$\begin{cases} \cancel{x_0^2} - \cancel{4x_0x_2} + x_1^2 - 2x_1x_2 - 3x_2^2 = 0 \\ x_0 = 0 \end{cases}$$

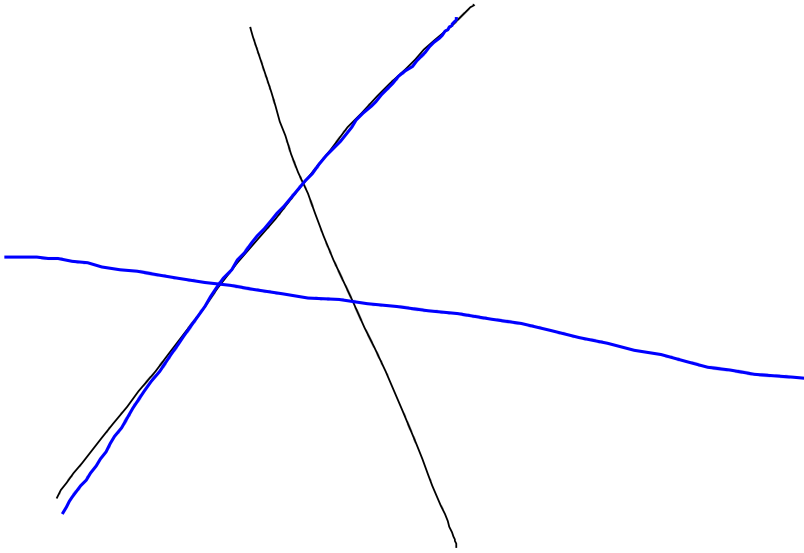
$$x_1 = x_2 \pm \sqrt{x_2^2 + 3x_2^2} = x_2(1 \pm 2) =$$

$$P_{1\infty} \equiv (0, 3, 1) = \begin{cases} 3x_2 \\ -x_2 \end{cases}$$

$$P_{2\infty} \equiv (0, -1, 1)$$

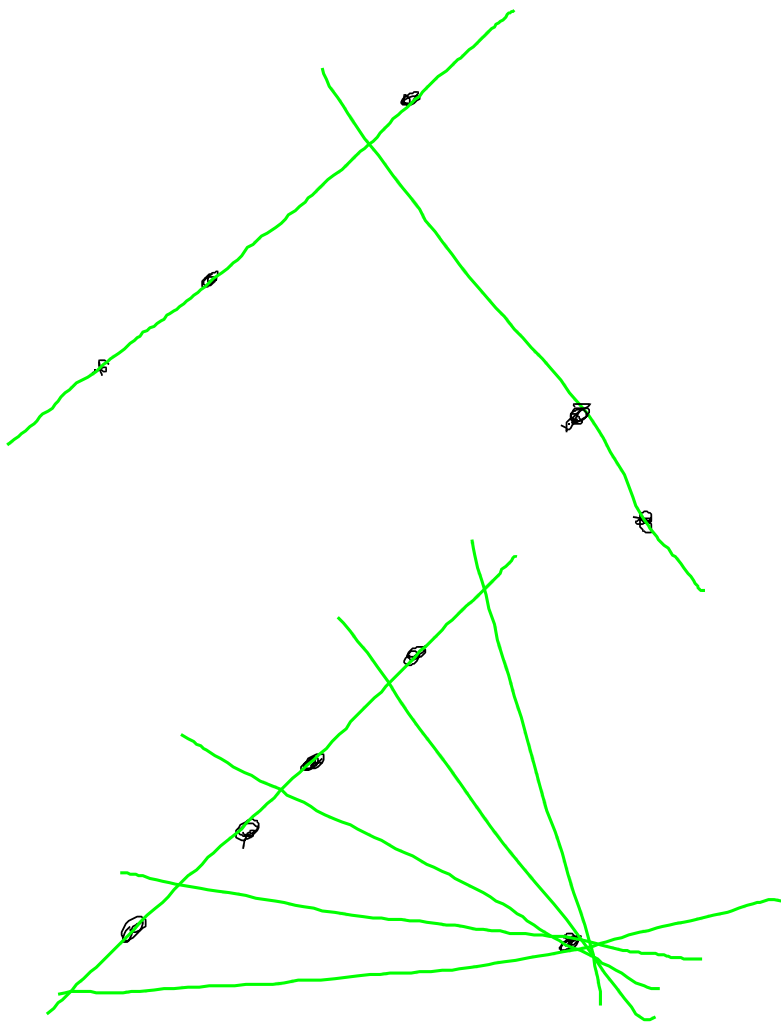
$$\begin{pmatrix} 0 & 3 & 1 \\ 0 & -1 & 1 \end{pmatrix} \cdot \begin{pmatrix} 1 & 0 & -2 \\ 0 & 1 & -1 \\ -2 & -1 & -3 \end{pmatrix} \cdot \begin{pmatrix} x \\ y \end{pmatrix} = 0$$

$$\begin{aligned} a_1: & -2 + 2x - 6y = 0 \\ a_2: & -2 - 2x - 2y = 0 \end{aligned}$$



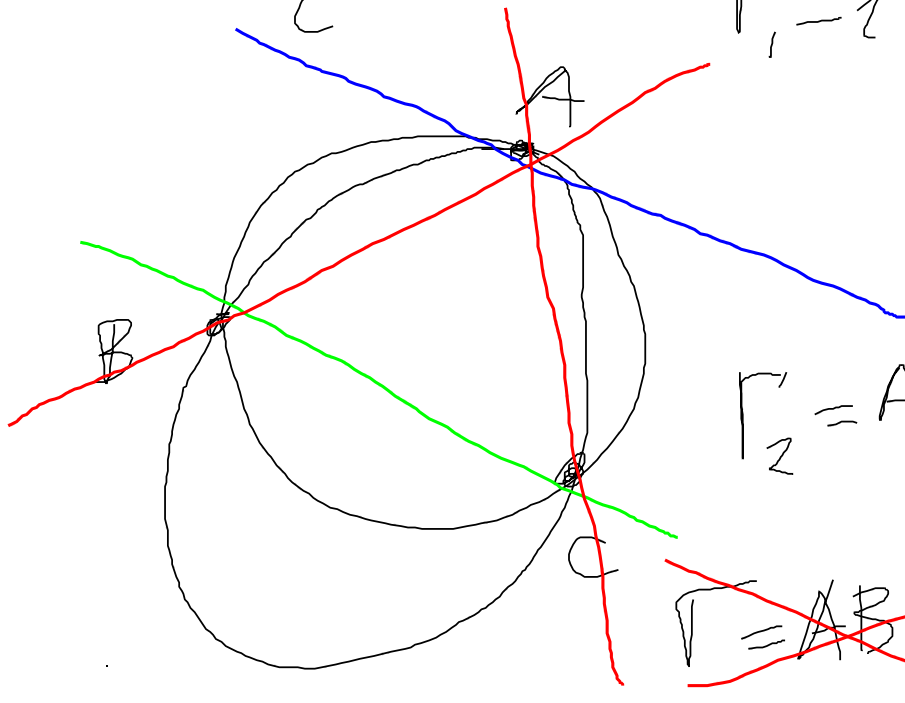
$$\begin{pmatrix} 1 & 2 & 3 \\ x_0 & x_1 & x_2 \end{pmatrix}$$

$$\begin{aligned} a_{00} & 1 + 2a_{01} \cdot 2 + 2a_{02} \cdot 3 + \\ & + a_{11} \cdot 2^2 + 2a_{12} \cdot 2 \cdot 3 + a_{22} \cdot 3^2 = 0 \end{aligned}$$



Σ

$$\Gamma_1 = \{U, BC\}$$



$$\Gamma_2 = AB \cup AC$$

~~$$\Gamma = AB \cup BC$$~~