

$$A = \begin{pmatrix} a_0^0 & a_1^0 & a_2^0 \\ a_0^1 & a_1^1 & a_2^1 \\ a_0^2 & a_1^2 & a_2^2 \end{pmatrix} M_0^0$$

$$A_0^0 = |M_0^0|$$

~~$$a_0^0 X_0^2 + 2a_1^0 X_0 X_1 + 2a_2^0 X_0 X_2 +$$~~

$$+ a_1^1 X_1^2 + 2a_2^1 X_1 X_2 + a_2^2 X_2^2 = 0$$

$$X_0 = 0$$

Conica

$$x^2 - 2xy + 3y^2 - 6y + 1 = 0$$

$$X_1^2 - 2X_1 X_2 + 3X_2^2 - 6X_2 X_0 + X_0^2 = 0$$

$$A = \begin{pmatrix} 1 & 0 & -3 \\ 0 & 1 & -1 \\ -3 & -1 & 3 \end{pmatrix} \begin{matrix} M_3 \\ M_2 \\ M_1 \end{matrix}$$

$$|A| = \begin{vmatrix} 1 & 0 & -3 \\ 0 & 1 & -1 \\ -3 & 0 & 2 \end{vmatrix} = \begin{vmatrix} 1 & -3 \\ -3 & 2 \end{vmatrix} = -7 \neq 0$$

$$A_0 = \begin{vmatrix} 1 & -1 \\ -1 & 3 \end{vmatrix} = 2 > 0$$

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reale

$$|M_1| = 3 > 0$$

$$|M_2| = A_0 = 2 > 0$$

$$|M_3| = |A| = -7 < 0$$

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indef.

20/7/10 Es 1a

$$(k-2)x^2 - 6xy + (2k-1)y^2 - 4(k+1)x + 7(k+1)y = 0$$

$$A = \begin{pmatrix} 0 & -2(k+1) & (k+1) \\ -2(k+1) & (k-2) & -3 \\ (k+1) & -3 & (2k-1) \end{pmatrix}$$

$$|A| = \begin{vmatrix} 0 & 0 & (k+1) \\ -2(k+1) & (k-8) & -3 \\ (k+1) & (4k-5) & (2k-1) \end{vmatrix} =$$

$$= (k+1) \begin{vmatrix} -2(k+1) & (k-8) \\ (k+1) & (4k-5) \end{vmatrix} =$$

$$= (k+1)^2 \begin{vmatrix} -2 & (k-8) \\ 1 & (4k-5) \end{vmatrix} =$$

$$= (k+1)^2 (-8k + 10 - k + 8) =$$

$$= (k+1)^2 (18 - 9k) =$$

$$= -9(k+1)^2 (k-2)$$

$$\text{deg}(\Rightarrow) k = -1 \vee k = 2$$

$$\begin{pmatrix} 0 & -2(k+1) & (k+1) \\ -2(k+1) & (k-2) & -3 \\ (k+1) & -3 & (2k-1) \end{pmatrix}$$

$$k = -1 \quad \begin{pmatrix} 0 & 0 & 0 \\ 0 & -3 & -3 \\ 0 & -3 & -3 \end{pmatrix} \quad \rho = 1$$

$$k = 2 \quad \begin{pmatrix} 0 & -6 & 3 \\ -6 & 0 & -3 \\ 3 & -3 & 3 \end{pmatrix} \quad \rho = 2$$

$$M_{00} = \begin{pmatrix} (k-2) & -3 \\ -3 & (2k-1) \end{pmatrix}$$

$$A_{00} = 2k^2 - k - 4k + 2 - 9 =$$

$$= 2k^2 - 5k - 7$$

$$= 0 \quad k = \frac{5 \pm \sqrt{25 + 56}}{4} = \frac{5 \pm 9}{4} = \frac{7}{2}, -1$$

	$ A \neq 0$	$ A $	$ M_{00} $	coniche
$k < -1$	$\neq 0$	3	+	ellittiche
$k = -1$	0	1	0	deg. $\ell = 1$
$-1 < k < 2$	$\neq 0$	3	-	iperboliche
$k = 2$	0	2	-	deg. $\ell = 2$
$2 < k < \frac{7}{2}$	$\neq 0$	3	-	iperboliche
$k = \frac{7}{2}$	$\neq 0$	3	0	parabola
$k > \frac{7}{2}$	$\neq 0$	3	+	ellittiche