

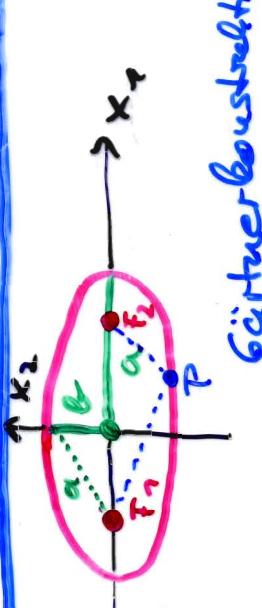
geometrische Darstellung

Kurve Φ
 Signatur
 (n_+, n_-, n_0)

Eigenwert
 Vorzeichen
 λ_1, λ_2

Normalform
 $\lambda_1 x_1^2 + \lambda_2 x_2^2 + (b_1' x_1 + b_2' x_2) + c' = 0$

Gärtnerkonstruktion
 $PF_1 + PF_2 = 2a$
 konstant



$$\frac{x_1^2}{a^2} + \frac{x_2^2}{b^2} = 1$$

$$x_1^2 + x_2^2 = r^2$$

$$\frac{x_1^2}{a^2} + \frac{x_2^2}{b^2} = 0$$

$\det A > 0$
 $c' < 0$

$a = b = r$

$c' = 0$

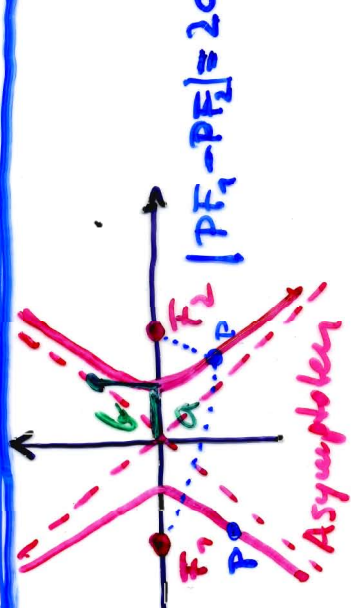
$c' > 0$

> 0
 > 0

$(2, 0, 0)$
Ellipse
 Spezialfall
Kreis
 entartet
 1 Punkt
 $\Phi = \emptyset$

$(0, 2, 0)$
 analog

imaginäre Ellipse



$$\frac{x_1^2}{a^2} - \frac{x_2^2}{b^2} = 1$$

$$\frac{x_1^2}{a^2} + \frac{x_2^2}{b^2} = 0$$

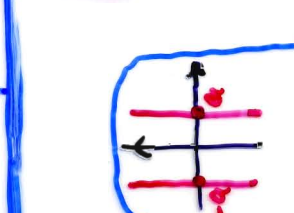
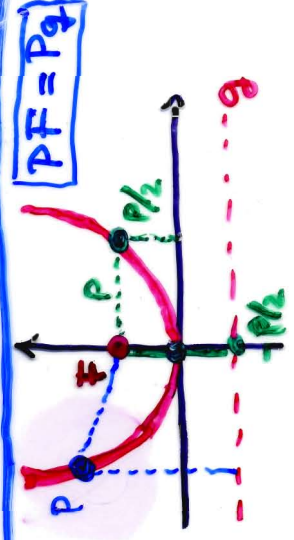
d.h. $x_2 = \pm i d x_1$

$\det A < 0$
 $c' \neq 0$

$c' = 0$

$> 0 < 0$
 (< 0 analog)

$(1, 1, 0)$
Hyperbel
 entartet:
 Paar sich
 schneidende
 Geraden



$$x_1^2 = 2p x_2$$

$$\frac{x_1^2}{a^2} = 1$$
 d.h. $x_1 = a$
 $x_1 = -a$
 $x_1^2 = 0$ ($a = 0$)

$\det A = 0$
 $b_2' \neq 0$

$b_2' = 0$
 $c' < 0$
 $c' = 0$
 $c' > 0$

$> 0 = 0$

$(1, 0, 1)$
Parabel
 entartet
 2 parallele Geraden
 1 Doppelgerade
 $\Phi = \emptyset$

$(0, 1, 1)$
 analog

Gerade
 imaginäre Gerade

Gerade $b_1' x_1 + b_2' x_2 + c' = 0$

$b_1' \neq 0$
 $b_2' \neq 0$

$b_1' = b_2' = 0$
 $c' \neq 0$

$= 0 = 0$

$(0, 0, 2)$
 $\Phi = \emptyset$