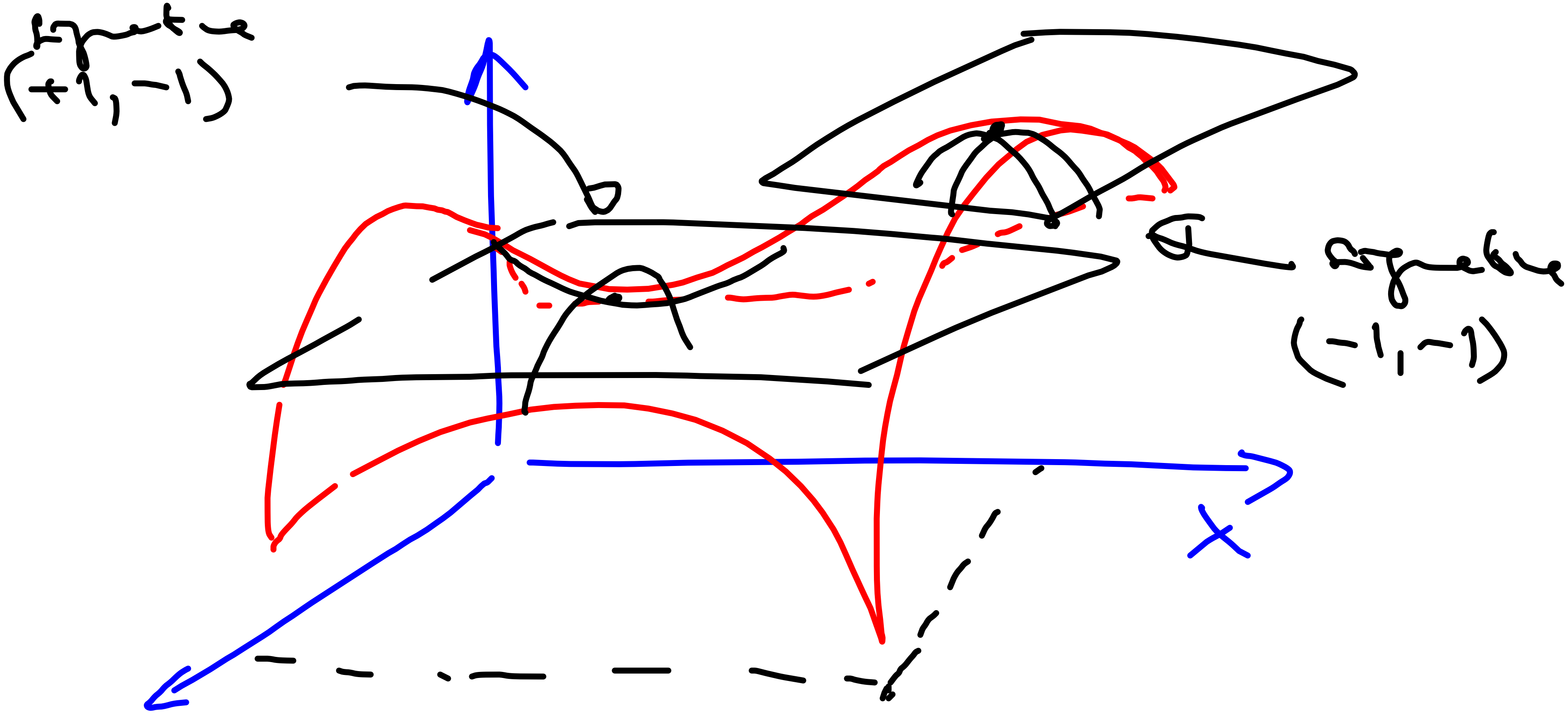


speciální kvadr. forma

$$f(x) + g(x) + a = 0$$

$$F(u,u) = \langle \varphi(u), u \rangle$$

$$\varphi(u) = \lambda u$$

$$\Downarrow$$

$$F(u,u) = \lambda \|u\|^2$$

$$F(u,v) = \lambda \langle u, v \rangle$$

$\langle e_1, \dots, e_n \rangle \dots$ ortonormální báze z vlastních vektorů pro φ

$$\Rightarrow \quad A = \begin{pmatrix} \lambda_1 & & 0 \\ & \ddots & \\ 0 & & \lambda_n \end{pmatrix}$$

$x_1 x_2$ $\qquad\qquad$ $x_1 = y_1$

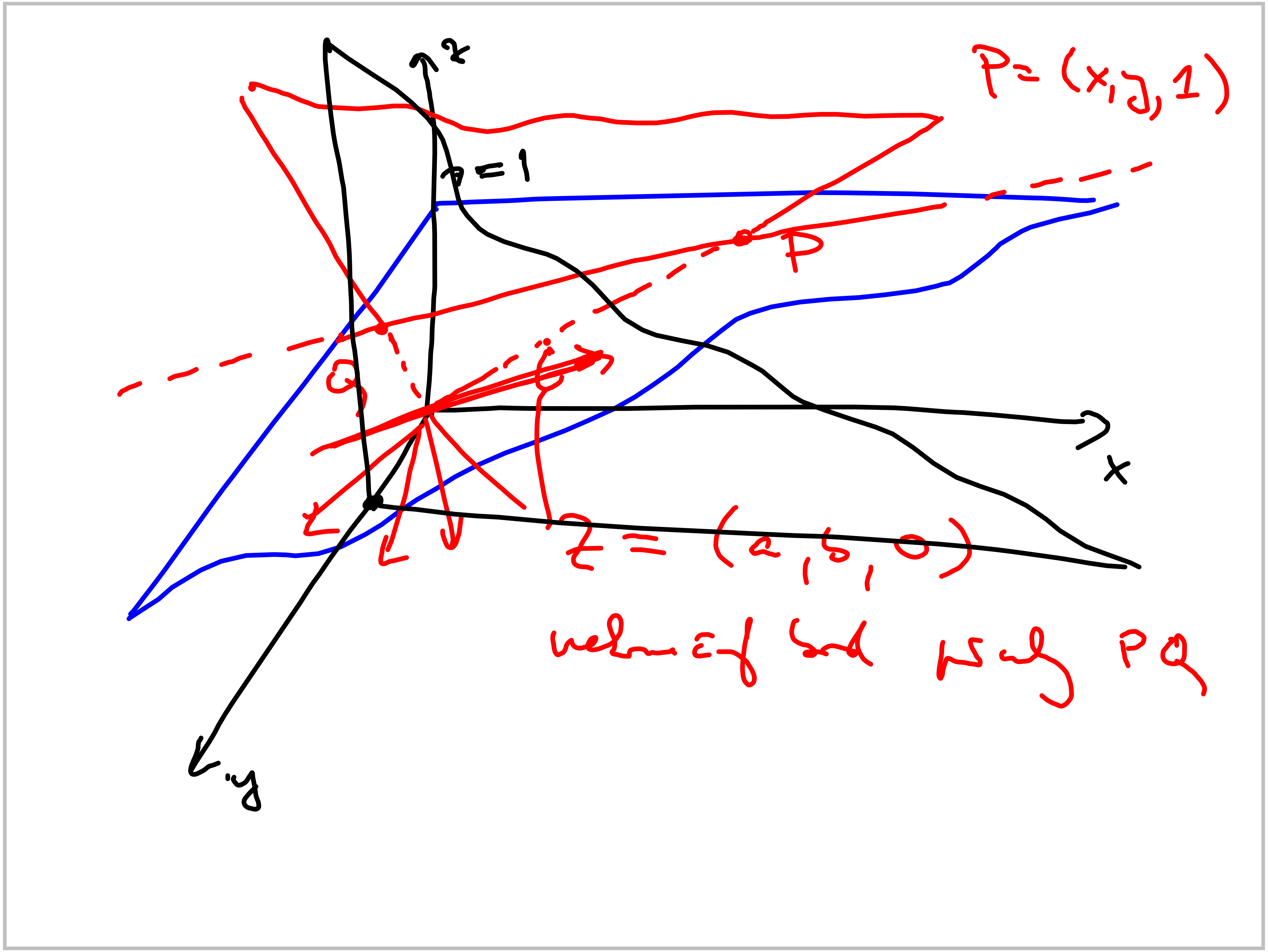
$\Downarrow$ $\qquad\qquad$ $x_2 = y_1 + y_2$

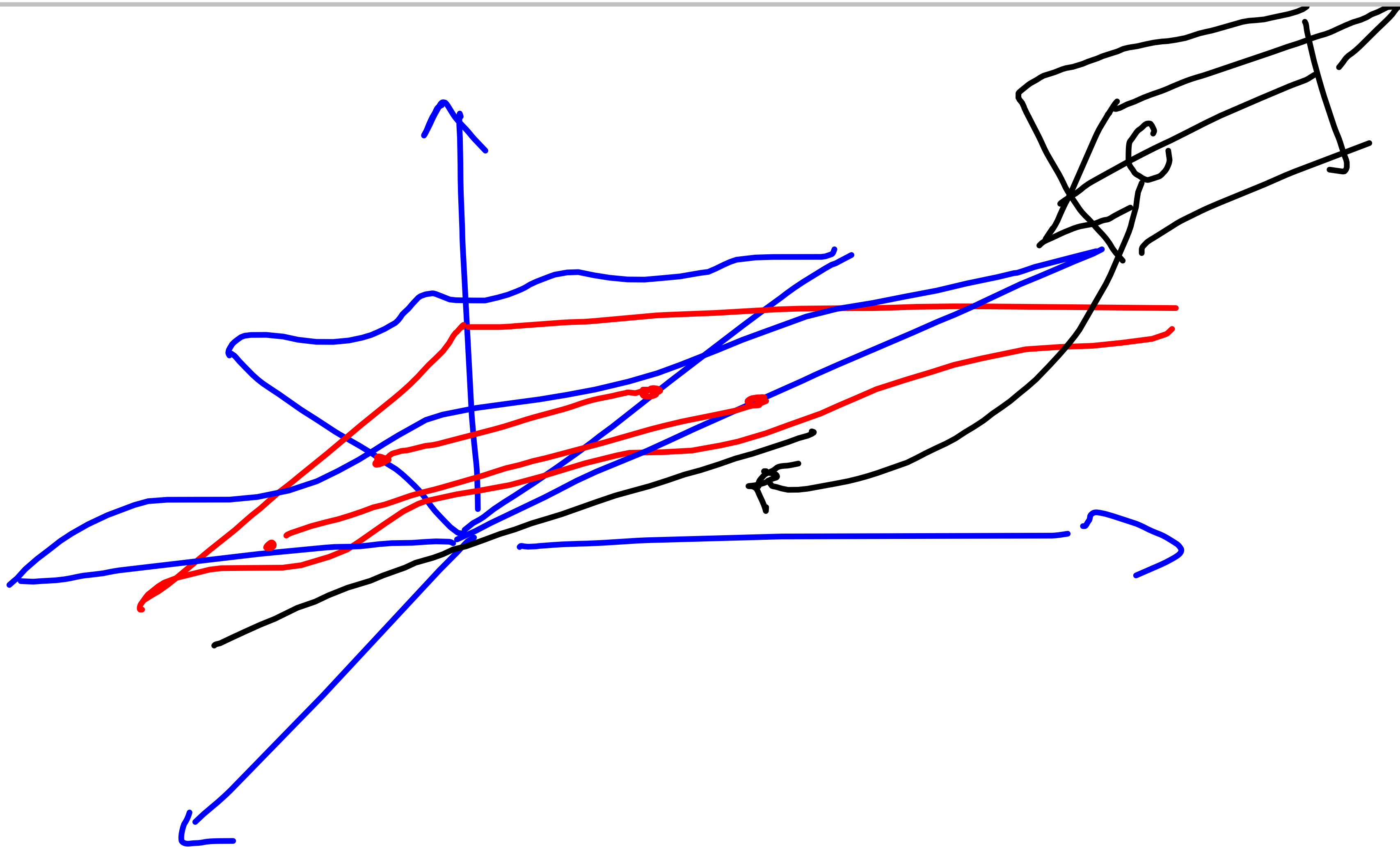
$y_1^2 + y_1 y_2$

polární báze:

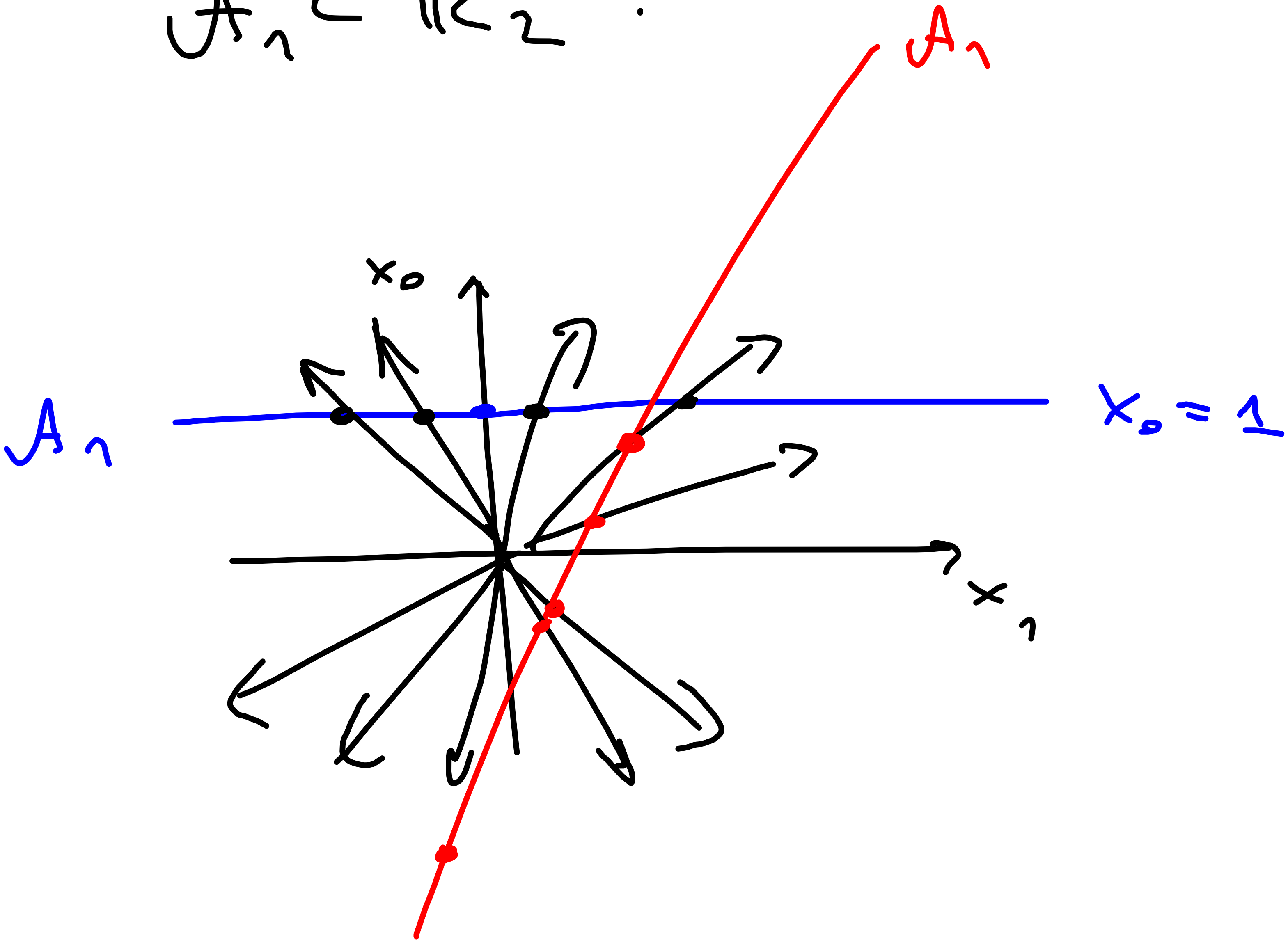
$$f(x_1, \dots, x_n) = d_1 x_1^2 + d_2 x_2^2 + \dots$$

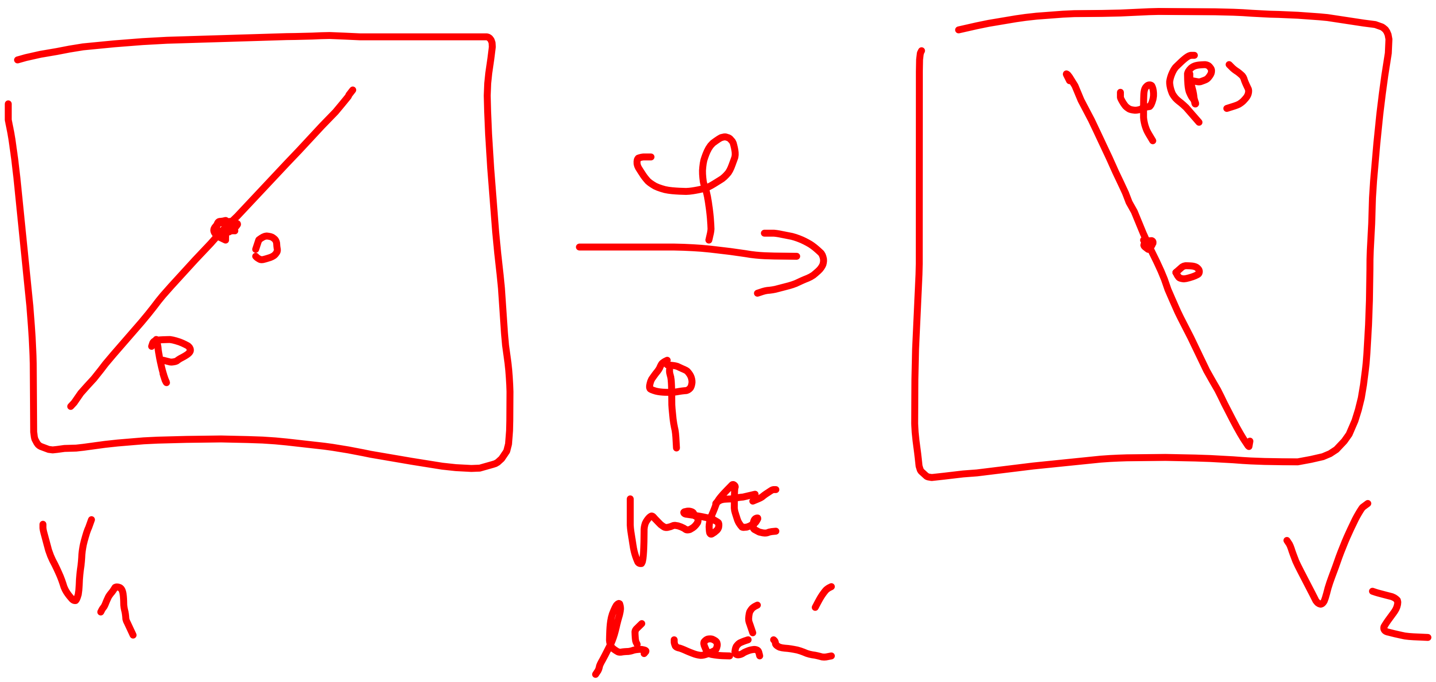
$$d_1 = \pm 1, 0$$


z
z = 1
P = (x, y, 1)
P
Q
x
y
Z = (a, b, 0)
PQ



$\mathcal{A}_1 \subset \mathbb{R}_2$:




P
o
φ(P)
o
φ
Φ
prosté
lineární
V1
V2

$$
\begin{array}{c}
\begin{array}{ccc} 1 & \multicolumn{2}{c}{0} \\ \| & \multicolumn{2}{c}{\|} \end{array}
\\
\left(\begin{array}{c|ccc}
a_{00} & a_{01} & \cdots & a_{0n} \\ \hline
a_{10} & a_{11} & \cdots & \\
\vdots & \vdots & & \\
a_{n0} & \cdots & & a_{nn}
\end{array}\right)
\end{array}
\begin{array}{c} \| \\ \begin{pmatrix} x_0 \\ x_1 \\ \vdots \\ x_n \end{pmatrix} \end{array}
$$

$x_0 = 1$ řešení lineární body

$\Rightarrow$ zůstane pěkně afinní

$$
\left(\begin{array}{c|c} 1 & 0 \\ \hline b & A \end{array}\right)
\left(\begin{array}{c} 1 \\ \hline x \end{array}\right)
=
\begin{pmatrix} 1 \\ A\cdot x + b \end{pmatrix}
$$

$$\sum_{i,j=1}^{n} a_{ij} x_i x_j + \sum_{i=1}^{n} a_{0i} x_0 x_i + a_{00} x_0^2 = 0$$

$$f(x_1, x_2, x_3) = x_1 x_2 + x_1 x_3$$

$$x_3 = 1$$

$$x_1 x_2 + x_1$$