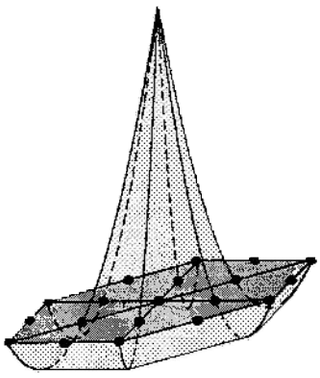
• Bemerkung 2.1.: → Verallgemeinerung auf (siehe Courant!):

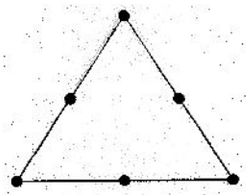
1. Ansatzfunktionen höherer Ordnung auf Dreieckselementen : **C^0-Elemente**

(a) quadratisches Element:

$\mathcal{F}(\Delta) = \mathcal{P}_2$



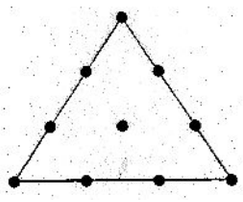
$$p(x) = a_0 + a_1x_1 + a_2x_2 + a_3x_1^2 + a_4x_1x_2 + a_5x_2^2$$



(b) kubisches Element:

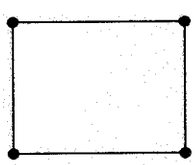
$$p(x) = a_0 + a_1x_1 + a_2x_2 + a_3x_1^2 + a_4x_1x_2 + a_5x_2^2 + a_6x_1^3 + a_7x_1^2x_2 + a_8x_1x_2^2 + a_9x_2^3$$

$\mathcal{F}(\Delta) = \mathcal{P}_3$



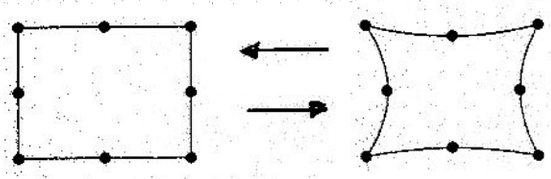
(c) allgem.: Lagrange-Dreiecksel. p-ter Ordnung : $\mathcal{F}(\Delta) = \mathcal{P}_p$

2. Andere Elemente, z.B. Viereckselemente: **C^0-Elemente**



bilineares Element

$\mathcal{F}(\Delta) = \mathcal{Q}_1$



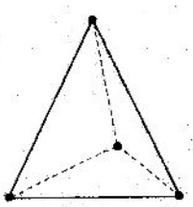
SERENDIPITY–Element (2. Ordnung)

$\mathcal{P}_2 \subset \mathcal{F}(\Delta) \subset \mathcal{Q}_2$

isoparametrisches Viereckselement

$$x = \sum_{\gamma \in A} x^{(\gamma)} p^{(\gamma)}(\xi)$$

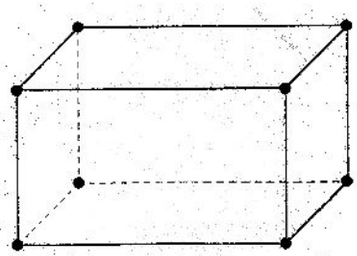
3. 3D–Elemente: **C^0-Elemente**



lineares Element

Tetraeder

$\mathcal{F}(\Delta) = \mathcal{P}_1$



trilineares Element

Quader HK 24

$\mathcal{F}(\Delta) = \mathcal{Q}_1$