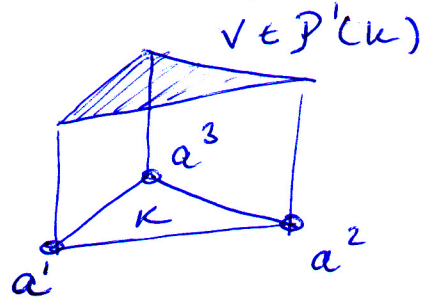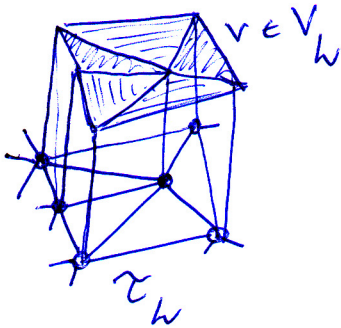The diameter h_K of a triangle K = longest side of K

<u>Mesh function $h(x)$ of mesh τ_h</u> = p.w. constant function $h(x) = h_K$ for $x \in K$
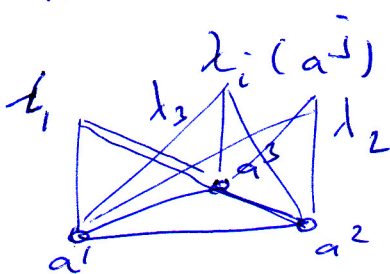
$$V_h = \{ v : v \text{ continuous on } \Omega, v/_K \in P'(K) \text{ for } K \in \tau_h \}$$

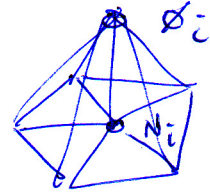$$P'(K) = \{ \text{ set of linear functions } v(x) \text{ on } K : \}$$
$$v(x) = C_0 + C_1 x_1 + C_2 x_2$$

Element basis functions for element K with nodes $\{a^1, a^2, a^3\}$: Element nodal basis functions $\lambda_i \in P'(K)$ $i = 1, 2, 3$:

$$\lambda_i(a^j) = \begin{cases} 1 & i = j \\ 0 & i \neq j \end{cases}$$

Global basis for V_h: tent functions

$$v \in V_h \Rightarrow v(x) = \sum_{i=1}^{M} v(N_i) \phi_i(x) ; \quad \phi_j(N_i) = \begin{cases} 1 & i = j \\ 0 & i \neq j \end{cases}$$