

Numerical PDE HW 7

Finally more Finite Element (FE) stuff

1. Write out in detail and your own words a demonstration that the nodal values pictured in Table 3.7 determine a unique element in $P_5(K)$.
2. Write out in detail and your own words a demonstration that the nodal values pictured in Table 3.7 determine functions that are continuous with continuous gradients across triangle boundaries.
3. Compute and plot the node functions for:
 - 3.1. The function value at a vertex.
 - 3.2. The normal derivative on an edge midpoint.
 - 3.3. The two gradient values at a vertex
 - 3.4. The three second derivative values at a vertex.