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# MATH 546

## Numerical Analysis of Elliptic PDEs

### Homework assignment 4

*Date assigned:* November 21, 2008

*Due date:* **December 12, 2008**

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- Include a cover page and *this* problem sheet
- Include the printout of your program(s) (if any) for completeness

### PROBLEMS:

1. Consider the Dirichlet problem from HW#2. Write down the variational formulation and solve it using **FreeFem++** package.
2. Consider the Neumann problem from HW#3. Can you adjust the boundary conditions so the compatibility condition will hold. Write down the variational formulation and solve the problem using **FreeFem++** package.
3. Calculate the local stiffness matrix for the reference triangle in Fig. 1.

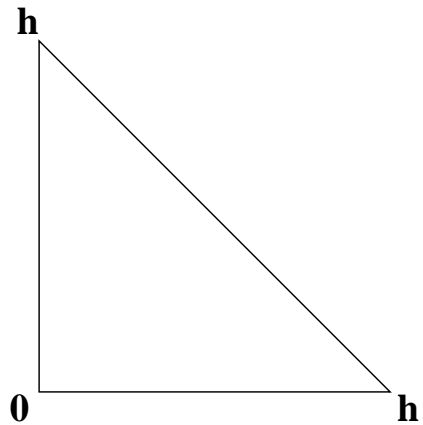


Figure 1: Reference triangle.