Numerical Algorithms

Winter semester 2013/2014
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Exercise Sheet 2.

Due date: **Thursday, 7 November**.

Exercise 3. (Poincaré-Friedrichs Inequality)

Prove the Poincaré-Friedrichs Inequality for $v \in H^1(\Omega)$ with $\Omega = (0,1)^2$ the unit square and $v = 0$ on $\tilde{\Gamma} = [0, \frac{1}{2}] \times \{0\} \subsetneq \partial\Omega$.

(5 points)

Exercise 4. (discrete trace operator)

Find $g \in P_1([0,1])$ such that for all $f \in P_1([0,1])$ holds

$$\int_0^1 f g \, \mathrm{d}x = f(0) .$$

(2 points)