

## Homework 2 (due 03/28/2016)

1. Compare approximate solutions of the following boundary value problem with the exact solution and discuss the accuracy. (Use two unknown parameters as in the note)

$$\frac{d^2 u}{dx^2} = u$$

$$u = 10 \text{ on } x = 0$$

$$u = 20 \text{ on } x = 1$$

- Least square method
- Collocation method
- Method of moment
- Galerkin Method

2. Investigate the effect of the number of unknown parameters of the following problem (in the note):

$$\frac{d^2 u}{dx^2} = u$$

$$u = 10 \text{ on } x = 0$$

$$\frac{du}{dx} = 0 \text{ on } x = 1$$

3. Solve the numerical example of 1D elasticity problem (in the note): (1) Displacement (2) Stain and Stress.