Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Student number\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Home assignment 3**

A bar is free to move in the horizontal direction as shown. At , displacement of the free end is  and velocity vanishes. Use the Finite Element Method on a regular spatial grid with  and the Discontinuous-Galerkin method with step size  to find the displacement and velocity of the free end at . Cross-sectional area *A*, density of the material, and Young’s modulus  of the material are constants.

*x*

**

*L*