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

**Home assignment 3**

A bar is free to move in the horizontal direction as shown. At , the bar moves with constant velocity  to the direction of the axis displacements being zeros. Use the Finite Difference Method on a regular grid with  and the Crank-Nicolson method with step size  to find the displacements and velocities at . Cross-sectional area *A*, density of the material, and Young’s modulus  of the material are constants.

*L*

*x*

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