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

**Home assignment 1**

A rectangular membrane of side length , density , thickness , and tightening  (force per unit length) is loaded by its own weight as shown. If the edges are fixed, find the transverse displacements at the grid points  of a regular grid using the Finite Difference Method. Use symmetry to reduce the number of non-zero independent displacements to three.

*x*

 *L*

*y*

*L*

*g*