

Name _____ Student number _____

Home assignment 1

A rectangular membrane of side length L , density ρ , thickness t , and tightening S' (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 $(i, j) \in \{0, 1, 2, 3, 4\} \times \{0, 1, 2, 3, 4\}$ of a regular grid using the Finite Difference Method. Use symmetry to reduce the number of non-zero independent displacements to three.

