

2.3.11. Solve Laplace's equation inside a rectangle:

$$\Delta^2 u = \frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = 0$$

subject to the boundary conditions:

$$\begin{aligned} u(0, y) &= g(y), & u(x, 0) &= 0, \\ u(L, y) &= 0, & u(x, H) &= 0. \end{aligned}$$

(*Hint:* If necessary, see Sec. 2.5.1.)