

Homework 7

I.

Write out the matrix equation for the standard second order central difference approximation to the equation

$$u_{xx} + u_{yy} = f(x, y), (x, y) \in [0, 1] \times [0, 1]$$

with the boundary conditions

$$u(0, y) = 1, u(1, y) = 0, u_y(x, 0) = u_y(x, 1) = 0.$$