

NMA – homework from week 7

Consider boundary value problem

$$-(\cos(x) y'(x))' + x^2 y(x) = -(x + 1), \quad y(-1) = 1, \quad y(1) = 0.$$

- a) Verify the existence and uniqueness of the solution.
- b) Write the first two equations of the linear system obtained by the discretization of the problem using finite difference method with step-size $h = 0.2$.