

Homework 5

Determine if the following boundary value problems are self-adjoint or not.

$$y'' + y' + 2y = 0, \quad y(0) = 0, y(1) = 0,$$

$$y'' + \lambda y = 0, \quad y(0) = 0, y(\pi) + y'(\pi) = 0,$$

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