HOMEWORK 5

- Section 4.1 in the book: Exercises 22, 24, 26, 30.
- Section 4.3 in the book: Exercises 24, 26, 32, 34, 36.

Problem 1. Show that for the differential equation

$$y'' + y = 0,$$

(a) there are infinitely many solutions obeying $y(0) = y(\pi) = 0$;
(b) there is exactly one solution obeying $y'(0) = 0$ and $y(\pi) = 1$;
(c) there are no solutions obeying $y(0) = 1$ and $y(\pi) = 1$.