Dr. Z.'s Calc5 Homework assignment 11

1. Find the eigenfunctions and the equations that define the eigenvalues for the following boundary value problem.

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

2. Find the eigenfunctions and the equations that define the eigenvalues for the following boundary value problem.

$$y'' + \lambda^2 y = 0 \quad , \quad y'(0) = 0 \quad , \quad y(2) - 3y'(2) = 0 \quad .$$

3. Find the eigenfunctions and eigenvalues for the following boundary value problem.

$$y'' + \lambda^2 y = 0 \quad , \quad y'(0) = 0 \quad , \quad y(\pi) = 0 \quad .$$

4. Find the eigenfunctions and eigenvalues for the following boundary value problem.

$$y'' + \lambda^2 y = 0 \quad , \quad y(0) = 0 \quad , \quad y(2\pi) = 0 \quad .$$

5. Find the eigenfunctions and the equations that define the eigenvalues for the following boundary value problem.

$$y'' + \lambda^2 y = 0 \quad , \quad y(0) = 0 \quad , \quad y(10) + 5y'(10) = 0 \quad .$$