

Math 217-001 201810
Practice Assignment # 6

1. Solve

(a) $y'' + 4y' + 4y = 2e^{-x}$, $y(0) = 1$, $y'(0) = 1$

(b) $y'' + 4y' + 4y = 2xe^{-x}$, $y(0) = 1$, $y'(0) = 1$

(c) $y'' + 4y' + 4y = (2x + 1)e^{-2x}$, $y(0) = 1$, $y'(0) = 1$

(d) $y'' - 8y' + 20y = 100x^2 - 26 \cos x$

2. (a) $y'' + y = \tan x$, $y(0) = 1$, $y'(0) = 2$

(b) $y'' + 3y' + 2y = \sin(e^x)$, $y(\ln \frac{\pi}{2}) = 1$, $y'(\ln \frac{\pi}{2}) = 2$

3. Use the Green function to find the solution to the IVP.

(a) $y'' + y = \sec^2 x$, $y(\pi) = 0$, $y'(\pi) = 0$

(b) $x^2 y'' - xy' + y = x^2$, $y(1) = 5$, $y'(1) = 2$.

4. Use the Green function to find a solution to the BVP.

(a) $y'' - y' = e^{2x}$, $y(0) = 1$, $2y(0) + y'(0) = 1$, $y'(1) = 0$

(b) $x^2 y'' - 4xy' + 6y = x^4$, $y(1) - y'(1) = 0$, $y(3) = 0$.