

Exercise 15

Convert each of the following Fredholm integral equation in 9–16 to an equivalent BVP:

$$u(x) = 2x^2 + 3 + \int_0^1 K(x, t)u(t) dt, \quad K(x, t) = \begin{cases} 4t, & \text{for } 0 \leq t \leq x \\ 4x, & \text{for } x \leq t \leq 1 \end{cases}$$