

Exercise 16

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

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