

Exercise 9

In Exercises 9–12, show that the given function $u(x)$ is a solution of the corresponding Fredholm integro-differential equation:

$$u'(x) = xe^x + e^x - x + \frac{1}{2} \int_0^1 xu(t) dt, \quad u(0) = 0, \quad u(x) = xe^x$$

[TYPO: The 1/2 should not be here.]