

Exercise 14

In Exercises 13–16, show that the given function $u(x)$ is a solution of the corresponding Volterra integro-differential equation:

$$u''(x) = x \cos x - 2 \sin x + \int_0^x tu(t) dt, \quad u(0) = 0, \quad u'(0) = 1, \quad u(x) = \sin x$$