Problem 25

In each of Problems 23 through 25:

(a) Solve the given Volterra integral equation by using the Laplace transform.

(b) Convert the integral equation into an initial value problem, as in Problem 22(b).

(c) Solve the initial value problem in part (b), and verify that the solution is the same as the one in part (a).

\[ \phi(t) + 2 \int_0^t \cos(t - \xi) \phi(\xi) \, d\xi = e^{-t} \]