

Exercise 9

Solve $u_{tt} = c^2 u_{xx}$ for $0 < x < \pi$, with the boundary conditions $u_x(0, t) = u_x(\pi, t) = 0$ and the initial conditions $u(x, 0) = 0$, $u_t(x, 0) = \cos^2 x$. (*Hint*: See (4.2.7).)