

Exercise 9.6.3

Solve the wave equation, Eq. (9.89), subject to the indicated conditions.

Determine $\psi(x, t)$ given that at $t = 0$ $\psi_0(x)$ is a single square-wave pulse as defined below, and the initial time derivative of ψ is zero.

$$\psi_0(x) = 0, \quad |x| > a/2, \quad \psi_0(x) = 1/a, \quad |x| < a/2.$$