

Supplemental Problems of Assignment 7

Solve

$$\frac{\partial^2 v}{\partial t^2} = \frac{\partial^2 v}{\partial x^2} + \cos t, \quad (1)$$

$$v(0, t) = 0, \quad v(\pi, t) = 0, \quad (2)$$

$$v(x, 0) = \sin x, \quad \frac{\partial v}{\partial t}(x, 0) = 0. \quad (3)$$