

HOMEWORK 3 385 FALL 2004

Problem 1. (Two points) Solve the boundary value problem

$$u_t - u_{xx} = e^t + x, \quad 0 \leq x \leq a,$$
$$u(x, 0) = 0, \quad u(0, t) = u(a, t) = 0.$$

Problem 2. (Three points.) Solve the boundary value problem

$$u_{tt} + u_t - u_{xx} = e^t + x, \quad 0 \leq x \leq a,$$
$$u(x, 0) = 0, \quad u_t(x, 0) = 0 \quad u(0, t) = u(a, t) = 0.$$