

## Math 204. Homework 12

Problems from W.E. Boyce, R.C. DiPrima, D.B. Meade :

*Section 10.4* p. 485, Problems : 10, 32 . 35,

*Section 10.5* p. 493, Problems : 4, 7, 10, 20,

*Section 10.6* p. 500, Problems : 6, 11(a,b),

and the following problem:

**Problem 1.** Consider the initial boundary value problem

$$\begin{cases} u_t(x, t) = u_{xx}(x, t) + f(x), & x \in (0, L), t > 0, \\ u(0, t) = A, \quad u(L, t) = B, & t \geq 0, \\ u(x, 0) = g(x), & x \in [0, L], \end{cases}$$

where  $A, B$  are given numbers ,  $f, g$  are given functions defined on  $[0, L]$   
Show that this problem may not have two different solutions.