

HW #12a

Math 182, Spring 2009

Due Monday, May 11, 2009, by 11:00 a.m.

Solve Laplace's equation

$$\Delta u = 0, \quad 0 < x < L, \quad 0 < y < H$$

subject to:

1. $u_x(0, y) = 0, u_x(L, y) = 0, u(x, 0) = 0, u(x, H) = f(x)$
2. $u(0, y) = 0, u(L, y) = 0, u(x, 0) - u_y(x, 0) = 0, u(x, H) = f(x)$
3. $u_x(0, y) = 0, u_x(L, y) = 0, u(x, 0) = \begin{cases} 0, & x > L/2 \\ 1, & x < L/2 \end{cases}, u_y(x, H) = 0$