

HW #6b

Math 182, Spring 2009

Due Friday, March 13, 2009, by 11:00 a.m.

1. Determine analytic formulas for $u(x, t)$ if

$$u_{tt} = c^2 u_{xx}, \quad -\infty < x < \infty, \quad t > 0$$
$$u(x, 0) = 0, \quad u_t(x, 0) = \begin{cases} 1, & |x| < h \\ 0, & |x| > h \end{cases}$$

using characteristics.

2. Solve

$$u_{tt} - c^2 u_{xx} = 0, \quad -\infty < x < \infty, \quad t > 0$$
$$u(x, 0) = \begin{cases} |4 - x|, & |x| \leq 4 \\ 0, & |x| > 4 \end{cases}, \quad u_t(x, 0) = 0$$