MA 3425 Assignment 4 Due 23 November 2012

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1. Solve the Dirichlet problem for the inhomogeneous Wave Equation on the half line:

 $u_{tt} - c^2 u_{xx} = h$ u(t, 0) = 0 u(0, x) = f(x) $u_t(0, x) = g(x)$ for $t, x \ge 0$.

2. Prove that

$$\overline{u} = u$$
 $\overline{x} = \frac{x^2 + y^2 - 1}{x^2 + y^2 + 2y + 1}$ $\overline{y} = \frac{2x}{x^2 + y^2 + 2y + 1}$

is a symmetry of the Laplace Equation $u_{xx} + u_{yy} = 0$.