

# Math 309 Quiz 7

December 9, 2015

**Problem 1.** Use separation of variables to reduce the modified wave equation

$$u_{tt} + \gamma u - c^2 u_{xx} = 0$$

into a system of two ordinary differential equations.

**Problem 2.** Prove that

$$u(x, t) = f(x - ct), \text{ and } u(x, t) = f(x + ct)$$

are both solutions to the wave equation  $u_{tt} - c^2 u_{xx} = 0$ .