Partial Differential Equations

Homework 6

due October 24, 2008

1. Prove a maximum principle for the following semilinear PDE, called Burger's equation,

$$u_t + u\,u_x = u_{xx}\,,$$
$$u(x,0) = g(x)$$

   where $u = u(x,t)$ and $(x,t) \in \mathbb{R} \times [0,\infty)$.

2. Evans, p. 88 problem 14

3. Evans, p. 88 problem 15

4. Evans, p. 89 problem 17