Introduction to Partial Differential Equations 8:00-8:50am CB347 Fall 2012 Instructor: Russell Brown Office: POT741 Phone: 257-3951 russell.brown@uky.edu Office Hours: WF 2-3 in POT 741 and by appointment.

Homework 1. The first item should be completed before the beginning of finals week. The remaining items are due on Friday, 31 August 2012.

- 1. Attend 4 hour-long presentations in the partial differential equations seminar, colloquium, the CCS seminar series or other lectures with a substantial scientific content. Prepare a one page summary of each lecture. No double-dipping. You should not submit a summary of a lecture that was required for another mathematics class. This will count as 4 homework problems.
- 2. Evans, p. 13 #4 and 5.
- 3. Find a smooth solution of the initial value problem

$$\begin{cases} u_t + u_{x_1} + u_{x_2} = 0, & t \ge 0, x \in \mathbf{R}^2 \\ u(0, x_1, x_2) = \sin(x_1 + 2x_2). \end{cases}$$

Can you find two solutions?

Week 1.

- Wednesday, 22 August. Introduction. Read Chapter 1 and section 2.1.
- Friday, 24 August–Monday, 27 August, Section 2.1.

August 21, 2012