Introduction to Partial Differential Equations
MWF 12–12:50pm
CB343
Fall 2005

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and by appointment.

The due date on homework 1 is now Monday, 12 September 2005.
Homework 2. These problems will be due on Friday, 16 September. However, it would be good if you completed them during the time I am away.

1. Suppose that $y(t)$ is a continuously differentiable function that satisfies $y' \leq Ay$ for $t \geq 0$ and $|y(0)| \leq B$.

   Show that $y(t) \leq Be^{At}$.

   Can you find a function y which satisfies the differential inequality $y' \leq Ay$ and for which the conclusion is an equality?

2. Solve the initial value problem $y' = y^2$, $y(0) = 1$.

3. Suppose that $y(t)$ solves the differential equation

$$y' = f(t, y(t)).$$

   Find a function g so that $z(t) = y(-t)$ solves $z'(t) = g(t, z(t))$.

August 31, 2005