

MATH 557, Fall 2007,

Homework set # 1, Due: August 27, 2007

1. Consider the initial value problem $y' = \sqrt{|y|}$, $y(0) = 0, t \geq 0$. Assume that y is a single real variable. Find as many solutions as you can. Are they continuous? Are their first derivatives continuous? Are solutions unique?
2. Find all solutions of $y' = y^2 - 1$. Pay particular attention to the intervals t upon which each solution is defined.