

Assignment 10
(Due April 23, 2008)

Reading: (*from Reed*) §5.6, 5.7

Problems: §5.3: #1-5, 7
§5.6: #3, 8, 9
§5.7: #2, 3, 5

Additional Problems:

1. Solve the ODE

$$f'(t) = \frac{1}{2f(t) - 1}, \quad f(0) = 1$$

using separation of variables. For what t is your solution valid?

2. In the “Set-up” for Picard Iteration, let

$$F(x) = \frac{1}{2x - 1}, \quad x_0 = 1, \quad b = \frac{1}{2} - \eta.$$

Here η is any positive number. Compute M and K , then choose b and a that satisfy the conditions there. (*Hint:* One way to find the Lipschitz constant K is to use the Mean Value Theorem.)