

MATH3860 - Elementary Differential Equations, Spring 2013

Quiz 5

Feb, 13 2013

NAME:

ID:

- You have 15 min to complete your quiz.
- Please show all your work neatly and indicate your final answers clearly. If you simply write down the final answer without appropriate intermediate steps, you may not get full credit for that problem.
- The quiz is closed book and notes. **Calculators are not allowed.**

GOOD LUCK :)

1. ( 10 points) Consider the initial value problem

$$y' + y^3 = 0 \quad y(0) = y_0. \quad (1)$$

- (a) Solve the initial value problem.
- (b) Determine how the interval in which the solution exists depends on the initial value  $y_0$ .
2. (5 points) Consider the homogeneous linear differential equation with constant coefficients

$$y'' + 2y' - 3y = 0$$

Construct its general solution.