

**ODE Math 119B, Spring 2010**  
**Quiz 1**

April 26th, 2010

Name: \_\_\_\_\_

Perm number: \_\_\_\_\_

1. Consider the system

$$\begin{aligned}x_1' &= x_2 \\x_2' &= -x_1 + x_1^3\end{aligned}$$

- (a) Verify that the system is Hamiltonian.
- (b) Find all equilibrium points.
- (c) Determine the stability of each equilibrium point.