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.