Math 333
Quiz 3
Thursday, February 7, 2008

1. Locate the bifurcation values for

$$\frac{dy}{dt} = y^2 - ay + 1$$

and describe the bifurcation that occurs at each bifurcation value.

2. Solve the initial-value problem

$$\frac{dy}{dt} + 2y = e^{t/3}, \quad y(0) = 1.$$

3. Find the general solution of

$$\frac{dy}{dt} = -\frac{y}{1+t} + t^2.$$