

Name \_\_\_\_\_  
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**Math 2250–1**  
**Quiz 3**  
**September 9, 2011**

1) Consider the following differential equation:

$$\frac{dx}{dt} = -x^2 + 5 \cdot x - 4 .$$

1a) Find the equilibrium solutions. Hint: rewrite the right hand side as  $-(x^2 - 5 \cdot x + 4)$  and factor.

(4 points)

1b) Draw a phase diagram, and from this diagram deduce whether your equilibrium solutions are stable or unstable. For stable equilibrium solutions, determine if they are asymptotically stable.

(6 points)

(Note – could you find the solutions to this DE? You should be able to, even though there isn't time on this quiz for me to ask that question.)