Math 2250   Week 3 Quiz

Name, UID, and section TA: _____

Write your answer in the space provided. Show work for full credit. There is a third problem on the back of this page.

1. (3 points) Consider the following differential equation for $x(t)$, which could be modeling a logistic differential equation with harvesting

$$x'(t) = -x^2 + 3x - 2.$$

Find the equilibrium solutions. Then draw the phase diagram and indicate the stability for each equilibrium solution.

2. (3 points) Compute the partial fractions decomposition for

$$\frac{1}{(x-1)(x-2)}.$$

3. (4 points) Use your work from (2) to solve the initial value problem

$$x'(t) = -x^2 + 3x - 2$$

$$x(0) = 3$$