Math 2410-10/15 **Quiz #4** **February 27^{th}, 2017**

Note: Partial credit can not be awarded unless there is legible work to assess.

1. Find all equilibrium points of the following predator-prey model and explain the significance of these points in terms of the predator and prey populations.

$$\frac{dR}{dt} = 10R\left(1 - \frac{R}{10}\right) - 2RF$$
$$\frac{dF}{dt} = -8F + 4RF$$

2. Draw a 9 point vector field on the unit square and sketch the phase portrait for the following system.

$$\frac{dx}{dt} = x$$
$$\frac{dy}{dt} = -y$$