Quiz 2
Name: _____

Consider an S, I, R model of the spread of mumps with rate equations:

$$S' = -.001SI \qquad S(0) = 5000,$$
$$I' = .001SI - .1I \qquad I(0) = 400,$$
$$R' = .1I \qquad R(0) = 600.$$

where the time t is measured in days, $S(t)$ is the numbers of susceptibles, $I(t)$ the number of infecteds, and $R(t)$ the numbers of recovereds t days after we start measuring. Then answer the following:

1. What are the rates of change S, I, and R at time $t = 0$?

2. According to this model what is the average length of a case of the mumps?

3. How many recovereds are there 12 hours after we start making our measurements?

4. What is the threshold value for the number of susceptibles? (That is what is the value S when I becomes the largest?)