1. Consider the following 2x2 system of difference equations:

$$k_t = .95k_{t-1} + .05c_{t-1} \tag{1}$$

$$c_t = .5c_{t+1} - .2k_{t+1} \tag{2}$$

Determine whether this system is oscillatory and stationary.

2. Consider the Solow Model as developed in class. Now suppose that each period, a constant fraction of capital, z, is converted into a public good.

a. Represent the model as a single differential equation.

b. Derive a condition for the interior steady state of the model. How does it compare to that developed in class (where $z = 0$)?

c. Obtain a closed form solution for the model's steady state when the production function is Cobb-Douglas.

d. Solve for the value of s that maximizes steady state consumption.

e. Should we still refer to the value of s from d as the "golden rate" of savings?