Problem set on Solow model impulse-response example

For this problem set you will make an Excel spreadsheet. Print out the spreadsheet that you make and turn in the print-out with your name added at the top.

Consider the model described in the notes "DSGE Models: introduction/Example of a model solution."

I) Suppose that $\tilde{A}_t = \epsilon_t$ where ϵ is "white noise" as in the notes. In the first section of the spreadsheet show how $\tilde{k}$, $\tilde{y}$ and $\tilde{c}$ evolve over time in response to a productivity shock $\epsilon \neq 0$.

In the first column put the period *t*. Start with period -2 and go out to period 30. In the second column put ϵ_t . Set ϵ equal to zero in all periods other than period 1. In period 1, set ϵ equal to 0.05 .

In the next three columns put $\tilde{k}$, $\tilde{y}$ and $\tilde{c}$ in that order. To get values for these endogenous variables, assume that the savings rate *s* is 10 percent (0.10). For the other parameters you need, assume that "each period corresponds to a quarter" and use the values given on p. 211 of Romer. Note that "n = 0.25%" means *n = 0.0025* and so on.

II) Now repeat the exercise assuming $\tilde{A}_t$ is AR(1). That is, $\tilde{A}_t = \rho \tilde{A}_{t-1} + \epsilon_t$ where ϵ is "white noise." Assume that $\rho = 0.05$. Other parameters are as in part I).

In the first column put the period *t*. Start with period -2 and go out to period 30. In the second column put ϵ_t . Set ϵ equal to zero in all periods other than period 1. In period one, set ϵ equal to 0.05. In the third column put the value of $\tilde{A}_t$.

In the next three columns put the values of $\tilde{k}$, $\tilde{y}$ and $\tilde{c}$ in that order.