TS Module 9: Non-stationary ARIMA time series HW

(The attached PDF file has better formatting.)

Homework assignment: Non-stationary autoregressive process

A time series $Y_t = \beta \times Y_{t-1} + \epsilon_t$ has σ_ε^2 = 3, where *k* is a constant. (The textbook has $\beta = 3$.)

A. What is the variance of Y_t as a function of β and *t*?
B. What is $\rho(y_t, y_{t-k})$ as a function of β, k, and *t*?

See equations 5.1.4 and 5.1.5 on page 89.

{Note: This homework assignment has been replaced because of an unclear equation in the textbook; see the new homework assignment. If you have submitted this assignment already, you will be given credit.}