Module 3: Trends HW

(The attached PDF file has better formatting.)

Homework assignment: MA(1) Process: Variance of mean

Five MA(1) processes with 50 observations are listed below. The variance of ϵ_t is 1.

A. For each process, what is the variance of $\bar{y}$, the average of the Y observations?
B. How does the pattern of the first time series differ from that of the last time series?
C. Explain intuitively why oscillating patterns have lower variances of their means.

1. $Y_t = \mu + e_t + e_{t-1}$
2. $Y_t = \mu + e_t + \frac{1}{2} e_{t-1}$
3. $Y_t = \mu + e_t$
4. $Y_t = \mu + e_t - \frac{1}{2} e_{t-1}$
5. $Y_t = \mu + e_t - e_{t-1}$

(See page 50 of the Cryer and Chan text, Exercise 3.2)