Module 2: Time series concepts HW

(The attached PDF file has better formatting.)

Homework assignment: equally weighted moving average

This homework assignment uses the material on pages 14-15 ("A moving average").

Let $Y_t = 1/5 \times (\epsilon_t + \epsilon_{t-1} + \epsilon_{t-2} + \epsilon_{t-3} + \epsilon_{t-4})$ and $\sigma^2_e = 100$.

A. What is $\gamma_{t,t}$, the variance of Y_t?
B. What is $\gamma_{t,t-3}$, the covariance of Y_t and Y_{t-3}?

Write out the derivations in the format shown on page 15.