HW05

Trun-in needs to be submitted through the coursesite link in PDF format, which could be done by

- *Scan the manual write-up into PDF file.*

- *Typeset your turn-in in editors and convert into PDF.*

- *Prepare your turn-in through software like OneNote, Notable, ... and then save/export as PDF.*

1. Find the eight mysterious series $y_{1t}, \ldots, y_{8t}$ in the EXCEL file, **mysticseries.xlsx**. For each of the series,

   a. Plot the time-series plot, ACF and PACF.
   b. Identify the corresponding ARIMA model.

2. Prove for MA(1) process, $y_t = \varepsilon_t - \theta \varepsilon_{t-1}$, the PACF at lag k,

$$\phi_{kk} = \frac{-\theta^k (1 - \theta^2)}{1 - \theta^{2(k+1)}}, \ k \geq 1$$

3. Exercise 5.41

4. Exercise 5.50