Time Series - HW2

due Fri, Feb 6th

HW must be turn in as physical copy. If you used R, then use MS word to combine your answer, R code and plots. If you have any question, email nmimoto@uakron.edu.

1. Check if following AR(p) processes are causal or not. Plot theoretical acf of each process.

   (a) $Y_t = .3Y_{t-1} + e_t$

   (b) $Y_t = -.8Y_{t-1} + .2Y_{t-2} + e_t$

   (c) $Y_t = -.8Y_{t-1} + .2Y_{t-2} + .3Y_{t-3} + e_t$

2. Read in data directly onto your R by copy and pasting below code onto your R console.

```
#-----------------
Y1 <- read.csv("http://gozips.uakron.edu/~nmimoto/689/TS-hw2_data01.csv")
Y  <- ts(Y1[,2])    #- extract only second column as time series
plot(Y,type="o")
```

   (a) Plot of ACF and PACF of Y. Do they exibit typical characteristic of AR(3)?

   (b) Suppose Y is AR(2) process. Estimate the parameters $(\phi_1, \phi_2, \sigma^2)$ using Yule-Walker estimate. use `demean=FALSE` option.