

Time Series - Homework 3

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02-06-2022

Exercise 4.,

Part a.,

- a) Graph the sample autocorrelation function along with the approximate 95% confidence bands. Graph the sample partial autocorrelation function along with the approximate 95% confidence bands. Make an educated guess about the values of p and q based on these graphs.

```
set.seed(123) # fix pseudo number generator starting value
T<-400 # length of the time series
eps<-rnorm(T,0,1) # epsilon noise
eta<-rnorm(T,0,1) # eta noise process
```

```
X<-c(0,cumsum(eps)) # cumulate noise, RW
Y<-c(0,cumsum(eta)) # cumulate noise, RW
```

```
# create data frames
```

```
#a)
```

```
df<-data.frame(Y,X)
```

```
#b)
```

```
df2<-data.frame(Yt=Y[2:401],Yt_1=Y[1:400],Xt=X[2:401])
```

```
#c)
```

```
df3<-data_frame(dY=diff(Y),dX=diff(X))
```

```
## Warning: `data_frame()` was deprecated in tibble 1.1.0.
```

```
## Please use `tibble()` instead.
```

```
## This warning is displayed once every 8 hours.
```

```
## Call `lifecycle::last_lifecycle_warnings()` to see where this warning was generated.
```