

# MATH 427- Homework-6-Spring 2023

## 1 Exercise text book, Shumway and Stoffer

*The bolded problem will not be graded .*

Problem #1.2 (a, b),

Problem #1.4,

Problem #1.6(a,b),

**Problem #1.8 (a,b,c)**

## 2 Additional Exercises

### 2.1 Exercise 1

Compare the general appearance of the series (a) and (b) of # 1.2 with the earth quake series and the explosion series shown in Figure 1.7.

### 2.2 Exercise 2

Look back at the time series plots from class notes. Decide which of the following series are stationary. Justify your answers.

(a) Accidental deaths in USA(USAccDeaths)

(b) USA population(USpop)

(c) International Airline Passengers(airpass)

### 2.3 Exercise 3

For each of the following, state if it is a stationary process. If so, give the mean and autocovariance functions. Here,  $W_t$  is i.i.d.  $N(0,1)$ .

(a)  $X_t = W_2$

(b)  $X_t = t + W_2$

(c)  $X_t = W_t^2$