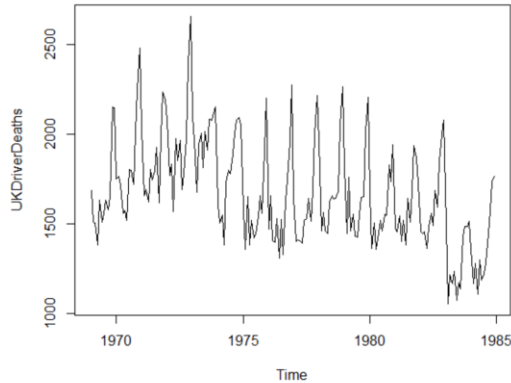MTH 325, Quiz #9, Spring 2023 Name _____

Instructions: Answer each question as thoroughly as possible. Round answers to 4 decimal places as needed. Exact answers are best when possible. Be sure to answer all parts of each question.

1. Using the built-in data on UKDriverDeaths, perform the following analyses of the time series.
   a. Plot the time series and paste the graph below.

   b. Use the decompose() function to decompose the time series into seasonal, trend and random components. Plot the graph(s) and paste them below. Describe the trend.
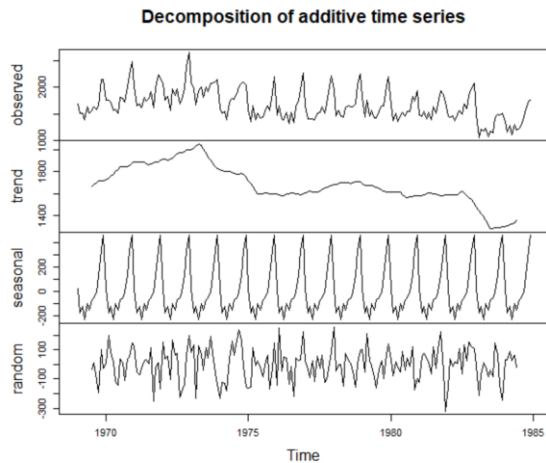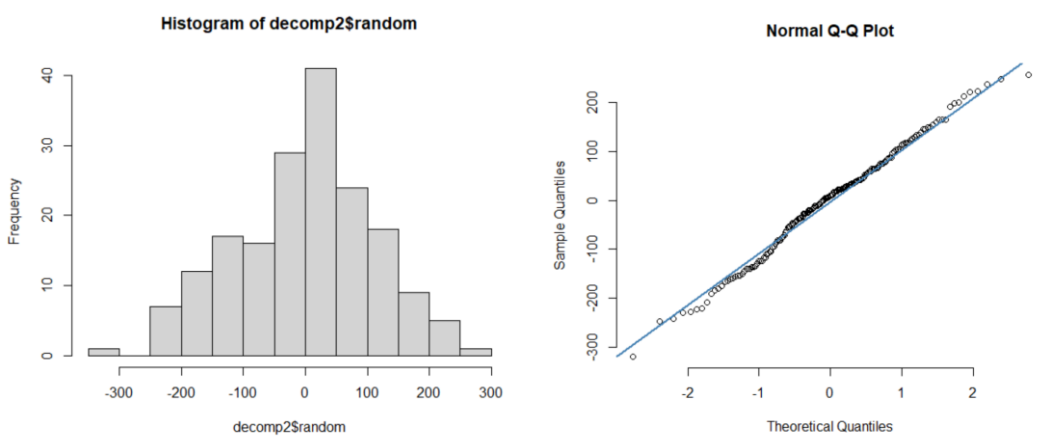

This looks like a random walk.

   c. Calculate the first differences. Plot the resulting differences. Does it appear stationary? Plot the first differences in a histogram and qqplot. Do the values appear to be normal? Paste all three graphs below.

Histogram of diff1
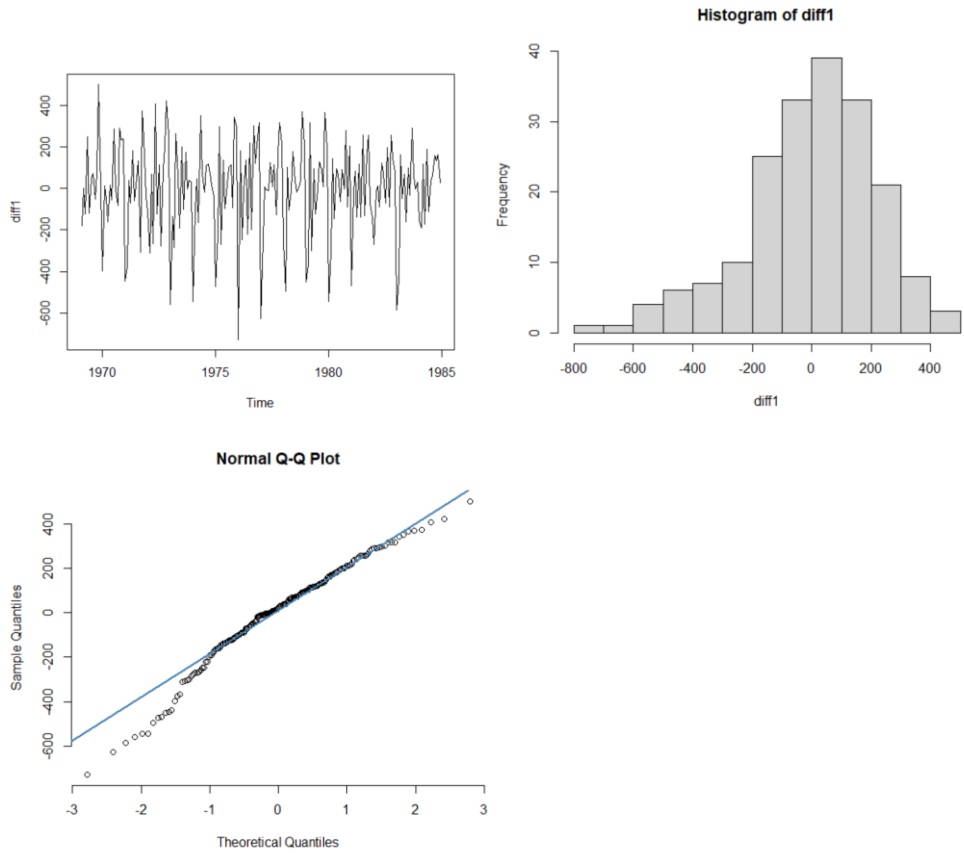
Normal Q-Q Plot

Based on the skewness of the differences, I'm not sure I'd call this stationary, since it's not normal.

d. From your decomposition object, extract the random element and plot a histogram and qqplot. Do these errors appear to be normal? Plot the graphs below.

Histogram of decomp2$random

Normal Q-Q Plot

These do appear to be normal.