

2.1. Create a time-series plot of the Gap Sales. Describe the pattern(s) of the time series you see in the graph.

The pattern of the actual data depicts a strong exponential trend with very little variability until $t = 60$ where random variation begins to be exhibited thereafter. Overall, the graph depicts an S-curve. This could indicate that Gap is suffering from a stagnation in sales growth and increased volatility towards the end of the data.

However, the pattern may also be indicative of a seasonal trend. This stems from the cyclical appearance of the data. In conclusion, another test must be conducted to accurately assess if the data is seasonal or not.