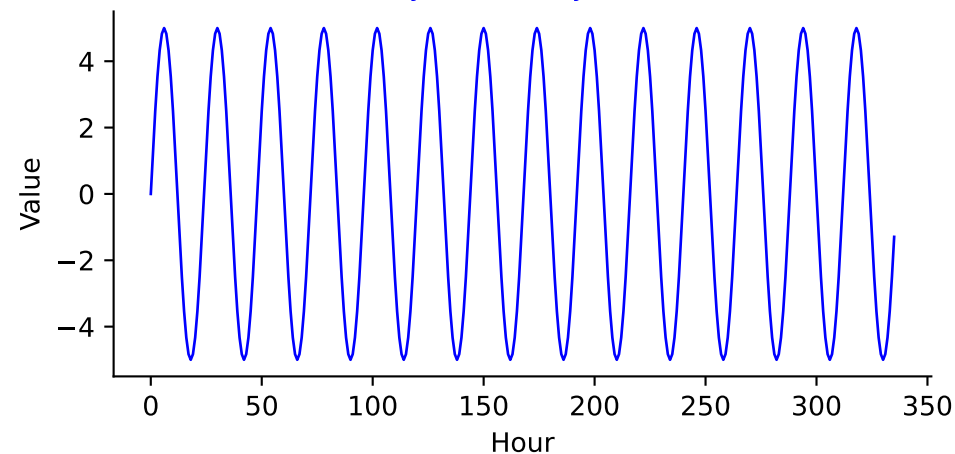
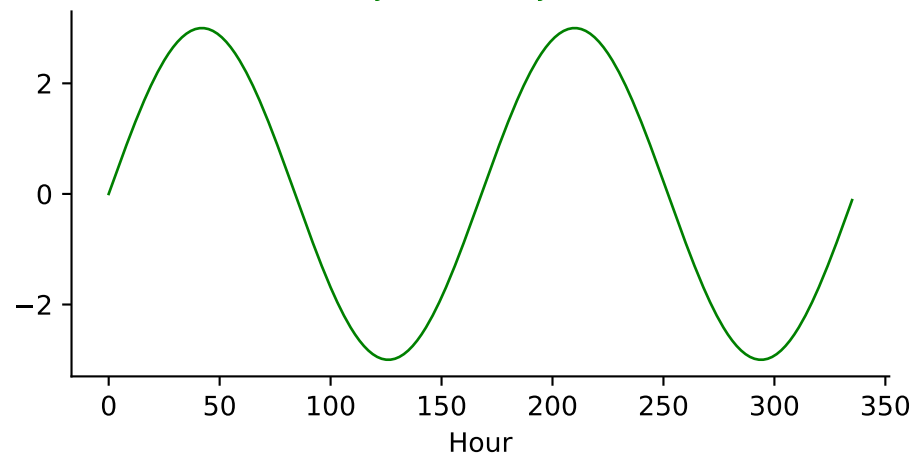


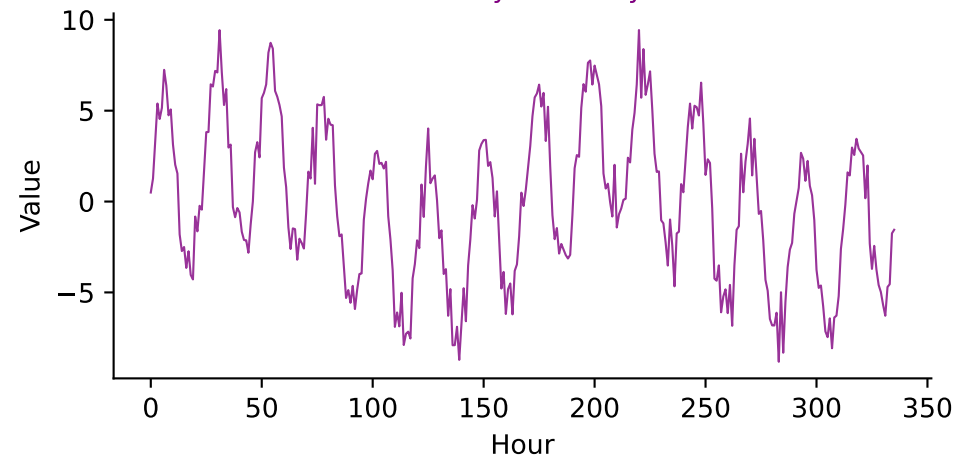
Daily Seasonality ($s=24$)



Weekly Seasonality ($s=168$)



Combined: Daily + Weekly + Noise



SARIMA Limitation:

$\text{SARIMA}(p, d, q)(P, D, Q)_s$ handles only ONE seasonal period s .

For hourly data with:

- Daily pattern: $s = 24$
- Weekly pattern: $s = 168$

SARIMA cannot model both!

Solutions:

- TBATS
- Prophet
- Fourier terms + ARIMA