

# Exercises Week 10

## DSP

**The remaining exercises from Week 8:**

4. Consider a periodic signal  $x[n]$  with period  $N = 5$  and the DFT coefficients:

$$X_k = [15.0000 + 0.0000i, -2.5000 + 3.4410i, -2.5000 + 0.8123i, -2.5000 - 0.8123i, -2.5000 - 3.4410i]$$

Write  $x[n]$  as a sum of sinusoids.

5. Find the DFT coefficients of the periodic signal with period  $\{1, 1, 0, 0\}$ , and write the signal as a sum of sinusoidal components.
6. Find the DTFT of the signal  $\{1, 1, 0, 0\}$ , considering it is surrounded with infinitely-long zeros on both sides