Exercises Week 8

DSP

1. Compute the circular convolution of the two signals:

$$x_1[n] = [1, 3, 1, 3]$$

$$x_2[n] = [2, 2, 5, 5]$$

2. Compute the circular convolution in $N = 7$ points of the same two signals (i.e. append zeros to make length 7, then do circular convolution)
3. Find the DFT coefficients of the periodic signal with period $\{1, 1, 0, 0\}$, and write the signal as a sum of sinusoidal components.
4. Find the DTFT of the signal ${1, 1, 0, 0}, considering it is surrounded with infinitely-long zeros on both sides