1. 6.4, p. 196
2. 6.6, p. 196
3. 6.8, p. 196
4. A real signal $x[n]$ is the input to an FIR filter with the following frequency response:

   $$\mathcal{H}(\hat{\omega}) = 1 - 2e^{-j\hat{\omega}}.$$

   The signal $x[n]$ is periodic with period 8 and has the following 8-point DFT

   $$X[0] = 2, X[1] = 0, X[2] = 1, X[3] = j, X[4] = 0.$$

   Find $y[n]$.
5. 6.18, p. 200
6. 6.19, p. 200
7. Find the coefficients of two first-order FIR filters such that, when cascaded, the overall response is

   $$\mathcal{H}(\hat{\omega}) = 2 + 3e^{-j\hat{\omega}} - 2e^{-j2\hat{\omega}}.$$

   Hint: Try factoring.