Problem 8.3 in Oppenheim/Schafer/Buck
Do parts a and b only. Justify your answer! Answers without justification will receive no credit.

Problem 8.6 in Oppenheim/Schafer/Buck
Justify your answer! Answers without justification will receive no credit.

Problem 8.23 in Oppenheim/Schafer/Buck

Problem ECE535-5

Figure 1 shows the DFS, $X_1[k]$, of a periodic sequence $x_1[n]$ that has period $N = 4$. Figure 2 shows the periodic sequence $x_2[n]$ (period $N = 4$).

(a) Determine the periodic sequence $x_1[n]$.

(b) Find the sequence $y_1[n]$ whose DFS is equal to the product of the DFS of $x_1[n]$ and the DFS of $x_2[n]$, i.e., $Y_1[k] = X_1[k]X_2[k]$.

(c) Suppose that $x_1[n]$ is the input to a filter with frequency response $h[n] = \left(\frac{1}{2}\right)^n u[n]$. What is the output of the filter? (An analytical expression should be fairly easy to obtain.)

Matlab Exercises
Do exercises a through c in Section 3.4 of Computer Explorations in Signals and Systems by Buck, Daniel, and Singer. Your solution to these exercises should be your Matlab code, plots, and any written work or comments.