CMS   C 641
Homework 4

Reading Assignment:
- Listen to Gilbert & Sullivan's *Pirates of Penzance* (or see the movie.)
- Read chapters and 30 of text.   Also read Chapter 2 of Algorithms by DPV

Homework:

1) Compute the three point DFT of $\begin{pmatrix} 1 \\ 0 \\ -1 \end{pmatrix}$. The three point DFT is the DFT based on the

principal third root of unity. Be sure to show your work.

2) Compute the four point DFT of $\begin{pmatrix} 1 \\ 0 \\ -1 \end{pmatrix}$. Hint: Enlarge the column vector by "padding"

in a zero at the bottom. Be sure to show your work.

3) Exercise 4.5-1 of the text.

4) Use a recursion tree to determine a good asymptotic upper bound for the recursion
$$T(n) = 5T(n/2) + n^2$$
   Be sure to show your work.