DSP Quiz #4

Discrete Fourier Transform

11/23/2020

Consider the following finite length sequence:

1. Compute the 5-point DFT *X*[*k*]
2. Compute the 5-point DFT *Y*[*k*] = *X*[*k*]2
3. Compute the inverse 5-point DFT of *Y*[*k*]to find the sequence *y*[n] for n = 0, 1, 2, 3, 4
4. If N-point DFTs are used in the two-step procedure, how should we choose N so that y[n] = x[n]∗x[n] for 0 ≤ n ≤ N − 1?
5. Repeat steps a-c with the value you found in part D.