1. Using Matlab, create a sequence x[n] that spells your name, such that A=1, B=2, etc. (e.g. "James" is [10 1 13 5 19]. If that happens to be your name, use "Jim" instead). Create a 3 row x 1 column subplot with the following plots:

   a. Make the top subplot a stem of x[n]. Correctly index it starting at n=0.

   b. Make the middle subplot $|X(ej\omega)|$ from $0 \le \omega \le 2\pi$. Use freqz to evaluate it. Hint: using the above sequence as an example,

   $x_{James}[n] = 10\ \delta[n] + \delta[n-1] + 13\ \delta[n-2] + \ldots$, so

   $X_{James}(e^{j\omega}) = 10 + e^{-j\omega} + 13\ e^{-j2\omega} + \ldots$

   c. Make the bottom subplot a stem plot of the absolute value of the DFT of x[n] (i.e. X[k]). Index it starting at k=0.

2. Using the mathematical definition of the DFT, simplify the expression X[k=0] in terms of x[n].