CMPE323 Signals and Systems Fall 2016
Homework #6 Assigned 11/23/2016, **Due 12/2/2016**

Your Name Here
"CMPE323" Here
Due Date: Here

Rules for all homework:

1. $8\frac{1}{2}\times 11$ paper, no perforations. (Not torn from spiral bound notebook) Lined, unlined, or grid is OK.
2. Name, date, and CMPE323 HW## on all assignments in upper right of first page.
3. You may write on both sides of paper. Include MATLAB code listings for MATLAB exercises and plotted output. You don't need to include MATLAB code if you just use MATLAB to sketch the required outputs.
4. Single staple in upper left. STAPLE – NOT FOLD! STAPLE – NOT PAPER CLIP! STAPLE!

Failure to follow these simple rules will result in a score of 0 for that homework.

CMPE323 HW06

Assume that you have eight points taken from the waveform

$$x(t) = 4\cos(2\pi f_1 t) - 3\sin(2\pi f_2 t + \pi/4)$$

$$\text{where } f_1 = 1 \text{ Hz}, f_2 = 3 \text{ Hz}, \text{ and the sample rate is 8 sps, so } \Delta t = 0.125 \text{ s.}$$

Populate the Decimation in Time, Radix-2 FFT algorithm to compute $X[k]$ using the figure below. Verify your results using MATLAB. Explain the physical meaning of the results.

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