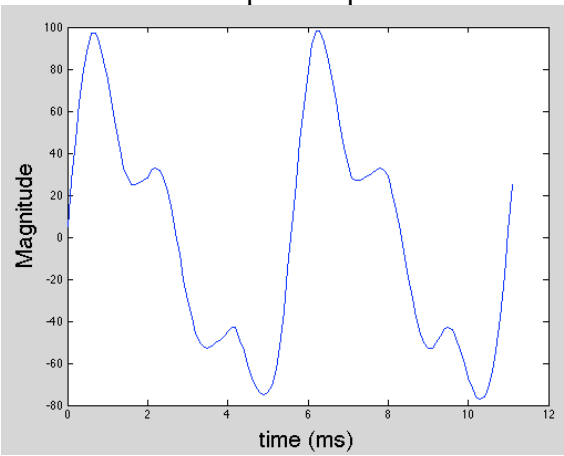
Practice problems 2

1. The table below shows radioactivity counts measured in 1 minute in three radioactive samples. Find out if any of the samples is statistically different from the others. Quantify your result if you can.

Sample 1	Sample 2	Sample 3
40	38	51
41	37	48
38	46	50
49	39	39
40	41	46
45	45	47
43	38	44

2. Sketch the Fourier power spectrum of a series constructed from a Gaussian white noise. (White noise is a completely uncorrelated signal. At any moment of time, the value of the signal is randomly drawn from a Gaussian distribution.) Mark the axes.

3. The plot below shows the intensity of sound when the vowel 'ooh' is sung. Sketch the Fourier power spectrum and the autocorrelation function.



4. Using the data in the body_men.mat and body_women.mat files, analyze whether a person's weight can be predicted from their height, waist girth, and abdomen girth. Estimate the uncertainty of prediction.