Review Problem 10.
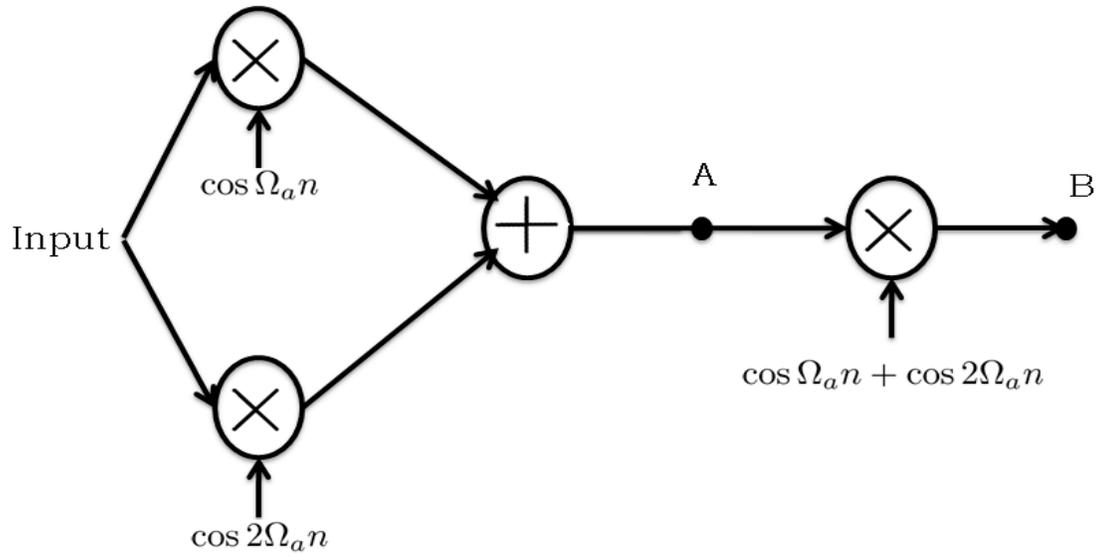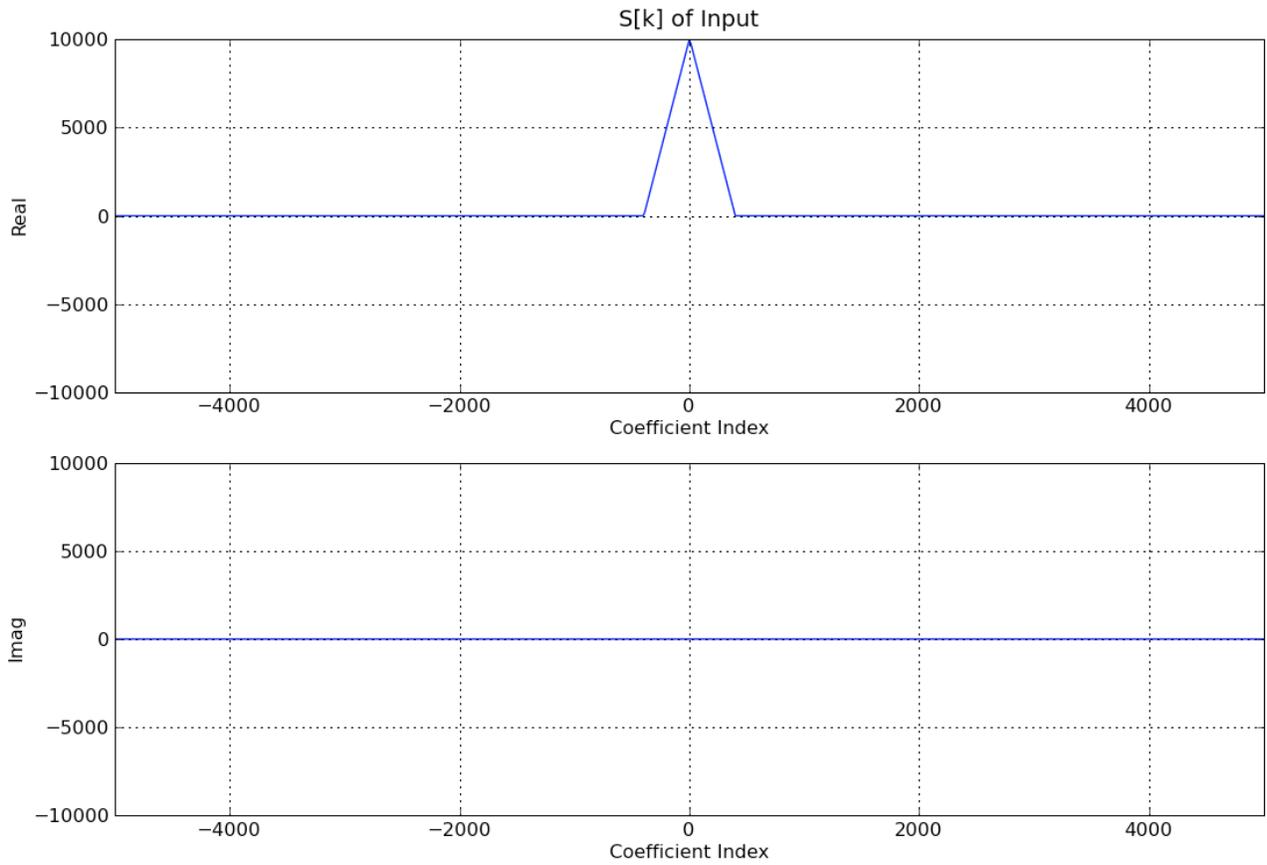
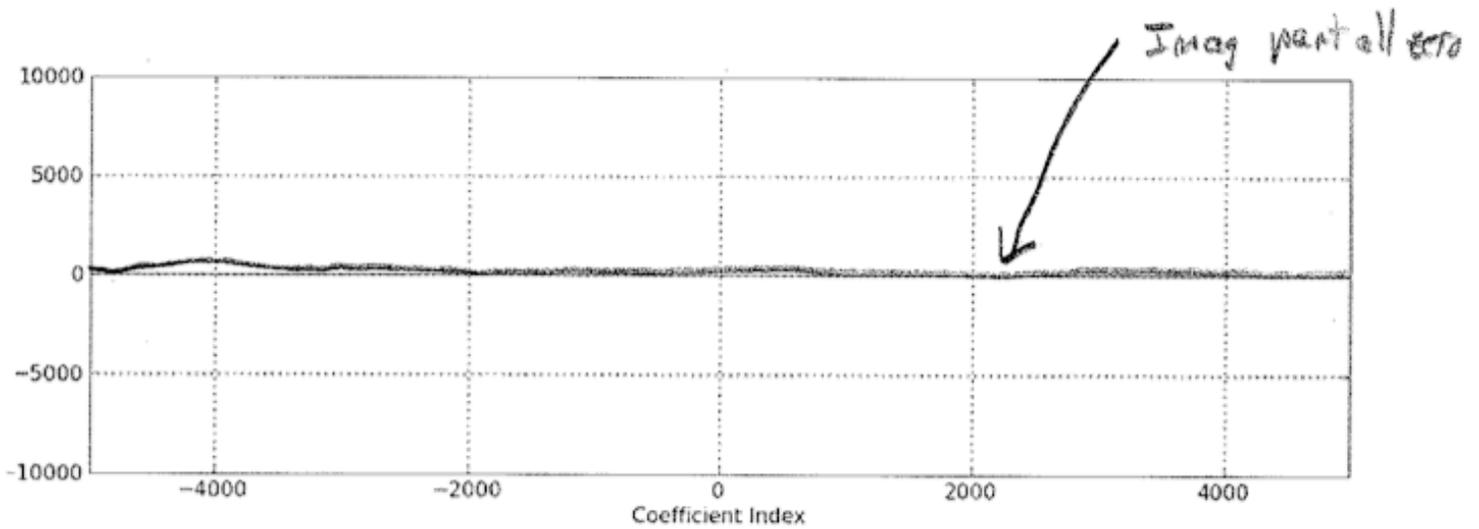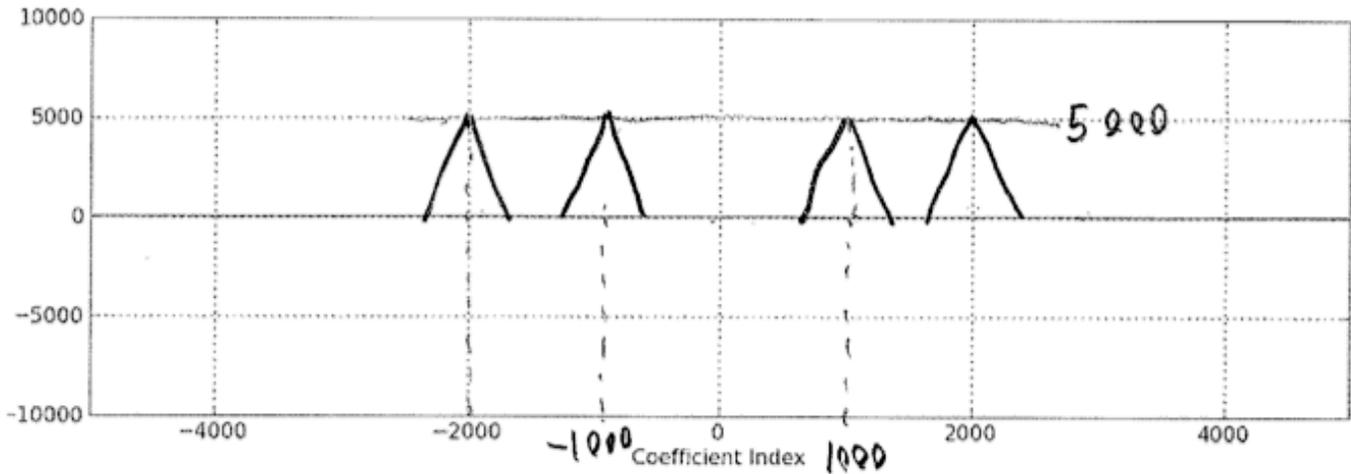Consider the simple modulation-demodulation system below, where $\Omega a = (1000*2*\pi)/10000$.

The Fourier Series coefficients for the input to the modulation-demodulation system is plotted below for the case N = 10000. Note that the Fourier coefficients are nonzero only for -400 ≤ k ≤ 400.

S[k] of Input

A. On the set of axes below, please plot the Fourier series coefficients for the signal at location **A** in the above diagram. Be sure to label key features such as values and coefficient indices for peaks.

Plot of Fourier Coefficients of signal at Point A

B. On the set of axes below, please plot the Fourier series coefficients for the signal at location **B** in the above diagram. Be sure to label key features such as values and coefficient indices for peaks.

Plot of Fourier Coefficients of signal at Point B

4 triangles at zero
2 triangles at 1000 · 1000
1 triangle at 2000, -2000
½ triangles at 3000-3000

-4000 -3000 -2000 -1000 0 -1000 2000 3000 4000
Coefficient Index

2500

Imag = 0

-4000 -2000 0 2000 4000
Coefficient Index