Introduction to Communication Systems
Columbia University
ELEN E3701
Spring Semester- 2008

Problem Set # 3

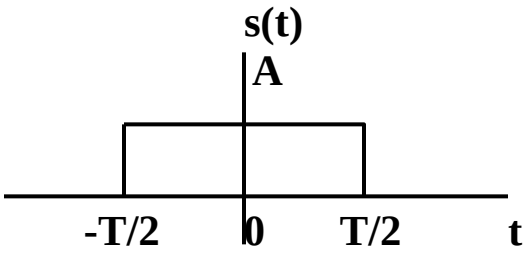
Problems Due: 19 February 2008

Problem #1

a. **Write the equation for a lower sideband SSB signal and show, in block diagram form, how you would generate a lower sideband SSB (LSB-SSB) signal.**
b. **Build a receiver for the LSB-SSB signal.**
c. **What is the condition on f_0 as a function of W which allows you to separate the baseband signal from the $2f_0$ signal at the receiver.**

Problem #2

Find the Hilbert Transform of a rectangular pulse, s(t).



Remember to use the Principal Part of the Integral, as shown in class.

Problem #3

Do Problem 2.18 of Chapter II, in Haykin's Book