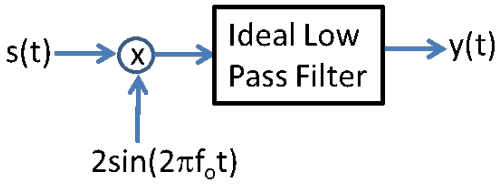
EECS 360
Homework #11

1. Section 5.5 Participation Activities
   5.5.1: Modulation terminology.
   5.5.2: AM and DSB Spectra, with envelope detection.
   5.5.3: DSB and AM.
   5.5.4: FDM total bandwidth.
   5.5.5: AM radio station bandwidth.
2. Exercise 5.5.1
3. Let $s(t) = x(t)\cos(2\pi f_0 t) + z(t)\sin(2\pi f_0 t)$, x(t) and z(t) have a bandwidth of B. The signal s(t) is processed by the receiver shown below. Assume $f_0 >> B$.



   a. Find the signal at the input to the ILPF in the time and frequency domains.
   b. Assuming the ILPF has a bandwidth B find y(t).

   Hint: Use trigonometric identifies for $\cos(\alpha)\sin(\beta)$ and $\sin^2(\beta)$

4. Exercise 5.5.3
5. Section 5.3 Participation Activities
   5.6.1: Nyquist sampling rate.
   5.6.2: Sampling theory.
   5.6.4: Sampling terminology.
   5.6.5: Sampling rates.
6. Challenge activity
   5.6.1: Sampling theorem
7. Exercise 5.6.2
8. Exercise 5.6.3
9. Exercise 5.6.4
10. Exercise 5.6.7