Due Friday, 25 June 2004 at 4:00 PM

ECE 438 Assignment No. 3 Summer 2004

1. Derive the Fourier series coefficients, c_k , for the signal $x(t) = \cos(w_o t)$.

2. Derive the Fourier transform for each of the following signals:

   a. $x(t) = \cos(w_o t)$ (the result from (1.) may be useful)

   b. $x(t) = \sum_{k=-\infty}^{\infty} d(t - kT) = rep_T[d(t)]$

3. Let x(t) be some signal with Fourier transform X(f). Derive Y(f) in terms of X(f) for the following signals:

   a. $y(t) = x^*(t)$

   b. $y(t) = even[x(t)] = \frac{1}{2}[x(t) + x(-t)]$

   c. $y(t) = x(t)\cos(w_o t)$