# Homework #4: Phys 3320:    Prof. Olness    Spring 2012

*Due Monday April 9, 2012*

*Hint: Use the sample mathematica file posted on the web page:*
    `http://www.physics.smu.edu/~olness/www/12spr1320/3320/`

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1,2,3,4) Using Mathematica, follow my example for the 4 functions given and:
- Plot the sample function:
- Compute the Fourier coefficients
- Plot the series with different numbers of termd
- Make  a "frequency domain" plot of the coefficients
- Re-write the Exp series as a Trig series
- Verify that they are identical

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5,6,7) By hand, compute the Sin coefficients for

   5) f(x)=x
   6) f(x)=0 for x=[0,π/2] and f(x)=1 for x=[π/2,π]
   7) f(x) = Exp[-x^2]

on the interval x=[0,2π].