Homework 2 – due M 02/25/08
[Using to Matlab Custom Neural Network]
Submit important commands, plots, etc., for grading.
Some useful neural network toolbox commands are con2seq and seq2con. Be sure to set your matlab path to include directories where you have needed files.

1. [60 points]
a). Use the 3 layer custom neural network setup in the Neural Network Toolbox Manual; call it netP21. But train it so that when the first 2-vector input is $[\cos(2\pi t) \ -\cos(2\pi t)]^T$, and the second 5-vector input has the ith component radbas(t-i/5), 1=1,…,5, for 0<t<3, the output of layer 2 is $y2(t)=[\sin(2\pi t) \ \sin(\pi t/4) \ \sin(\pi t/6)]^T$ and the output of layer 3 is $y3(t)=\cos(\pi t/4)$. Use at least 50 time sample points, give your mse; graph on the same plots the desired and actual neural network outputs.
b). Simulate the final network with the inputs as before but for 5 seconds.

2. [40 points]
Modify the custom neural network by choosing tansig for the activation functions of layer 2 and connect layer two to a layer four which has three outputs using purelin and no feedback; call the network netP22. Use the same signals as in problem 1 and compare the results for this new network with those of problem 1.