3.2-4) A *first order hold* (FOH) circuit can also be used to reconstruct a signal from its samples. The impulse response of this circuit is:

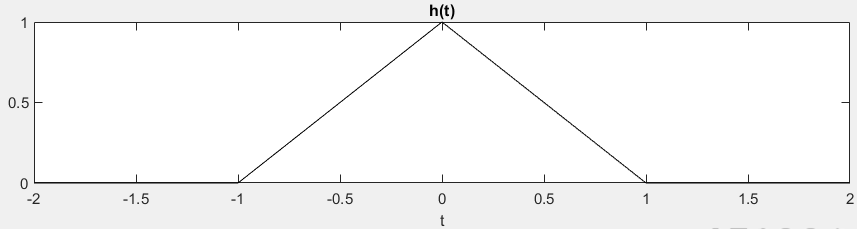
, where T is the sampling interval

1. Let be a sampling frequency that exceeds the Nyquist sampling theorem requirement

Then will be scaled deltas of at .

From class we know that is a periodic replication of spaced by sampling frequency and that since we chose a sampling frequency that meets Nyquist’s requirement, the periodic replications in will not overlap.

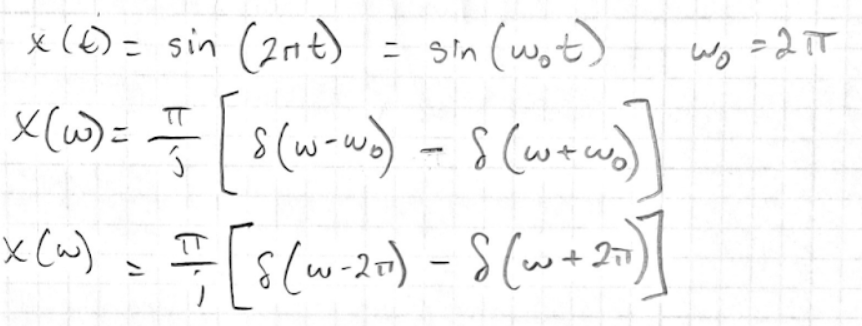
If we let T = 1, then in MATLAB looks like:



Then is:

We know that is a periodic replication of spaced by sampling frequency

So, :



In MATLAB,

