

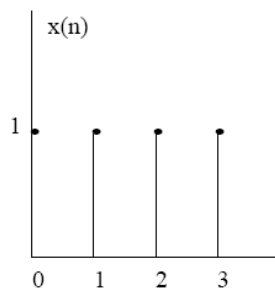
# CS474/674 Image Processing and Interpretation

Fall 2009 – Dr. George Bebis

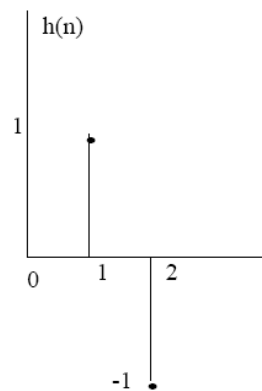
## Homework 3

Due Date: 10/15/2009

- (a) Find and plot the Fourier transform of  $f(x)=\cos(4\pi x)\cos(6\pi x)$  (**hint:** use the convolution theorem).  
(b) If we were to sample  $f(x)$ , what would be the largest sampling step that still avoids aliasing?
- Find and plot the convolution of the following discrete sequences:



4 samples (at 0,1,2,3)



2 samples (at 1,2)

- Problem 4.21 (page 306)
- Problem 4.33 (page 308)
- (Graduate Students Only)** Problem 4.23 (page 307)