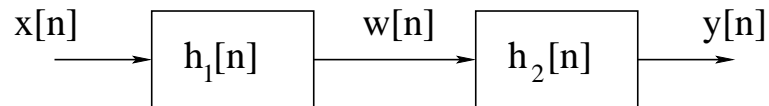# Homework 1
Due: September, 23, 2011

Question 1. Consider the cascaded LTI systems shown below.

Let

$$h_1[n] = \cos\left[\frac{2\pi}{3}n\right]$$
$$h_2[n] = 4\delta[n] - \delta[n-2]$$

1. Are these systems stable? Causal?

2. Let the input be

$$x[n] = \frac{1}{2^n}u[n].$$

   Compute the output $y[n]$.

3. Find the Fourier series expansion of $w[n]$.

Question 2. Textbook 2.63
Question 3. Textbook 2.74
Question 4. Textbook 3.36
Question 5. Textbook 3.37
Question 6. Textbook 3.43
Question 7. Textbook 3.48