

# Practice Problems 2 Final Answers

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ECE 313

Fall, 2012

NOTE: These are the final answers with justification purposely omitted.

Recall that you need to fully justify all answers on the exam (i.e. solutions like these would earn little or no credit).

1) a) • 3

• 7

•  $-4\pi$

•  $70\pi$

•  $228\pi$

b)  $h[n] = g[n] - g[n-1]$

2) a) causal and stable

$$b) y_b[n] = \begin{cases} 1/2, & n = -2, 4 \\ 3/2, & n = -1, 3 \\ 2, & n = 0, 1, 2 \\ 0, & \text{else} \end{cases}$$

c) see class notes

d)  $y[n] = 1/2 \cos(2\pi/3 n - 2\pi/3)$

3)

$$x_1[n] = 5/2 \delta[n] + \delta[n-1] + \delta[n+1] + 3/4 \delta[n-2] + 3/4 \delta[n+2]$$

4)

$$X_4(\Omega) = (1 + e^{-j\Omega^4}) X_3(\Omega)$$

5) [Don't obsess about this problem - it is hard!]

$$x[n] = \begin{cases} 2, & n=0, 4 \\ 1, & n=1, 3 \\ \sqrt{6}, & n=2 \\ 0, & \text{else} \end{cases}$$