Homework Assignment #6

Due date – Nov. 2, 2012 (Fri) 11:00AM @ ZACH 237F.

Problem 1. Inverse $z$-transform.
Solve problem P3.12 in the textbook.

Problem 2. Inverse $z$-transform.
Solve problems P3.14 (a), (d), (f), (h) in the textbook.

Problem 3. Inverse $z$-transform.
Solve problem P3.15 in the textbook.

Problem 4. Transfer function of LTI system.
Solve problem P3.32 in the textbook.

Problem 5. Response of an LTI system
Compute the output for the following pairs of systems and input signals. Assume that the system is initially at rest. (For more similar problems, see P3.35 in the textbook)
(a) $y[n] = \frac{5}{4} y[n - 1] - \frac{3}{8} y[n - 2] + x[n] + x[n - 1], x[n] = \left(\frac{1}{3}\right)^{n} u[n]$
(b) $h[n] = \left(\frac{1}{2}\right)^{n} u[n], x[n] = (n + 1) \left(\frac{1}{4}\right)^{n} u[n]$

(optional: 10 points) Problem 6. Inverse $z$-transform.
Solve problem P3.23 in the textbook.