

EE 341 - Homework 9

Due October 28, 2005

For problems which require MATLAB, please include a MATLAB m-file which shows how you made your plots.

1. Compute the DTFT of the following signals:

- (a) $x[n] = \{1, 2, 2, 1\}$
- (b) $x[n] = (0.5)^{n+2}u[n]$
- (c) $x[n] = n(0.5)^{2n}u[n]$
- (d) $x[n] = (n + 1)(0.5)^n u[n]$

2. The DTFT of $x[n]$ is

$$X(\Omega) = \frac{4}{2 - e^{j\Omega}}$$

Find the DTFT of the following signals without first finding $x[n]$.

- (a) $x[n - 2]$
 - (b) $x[n] - x[n - 1]$
 - (c) $x[n]e^{j\pi n}$
 - (d) $nx[n]$
3. Problem 7.6 (c). (You can do this easily from the table of DTFT's. You do not need to do an integral.)