

1. For the following signals, find the DTFT directly from the definition and use matlab to plot the magnitude and phase spectra for  $-\pi \leq \Omega < \pi$ .
  - a.  $f[k] = \delta[k]$
  - b.  $f[k] = \delta[k-2]$
  - c.  $f[k] = 2u[k] - 4u[k-5] + 2u[k-8]$
  
2. P10.2-2 and use matlab to plot the magnitude and phase spectra for  $-\pi \leq \Omega < \pi$ .
  
3. Given the DTFT  $F(\Omega) = 4/(2 + e^{-j\Omega})$ , use the properties of the DTFT to find the DTFT  $V(\Omega)$  of the following
  - a.  $v[k] = 0.5f[k]$
  - b.  $v[k] = f[-k]$
  - c.  $v[k] = kf[k]$
  - d.  $v[k] = f[k] - f[k-2]$
  - e.  $v[k] = f[k]e^{j3k}$
  - f.  $v[k] = f[k]*f[k]$
  - g.  $v[k] = f[k]f[k]$
  
4. Find the IDTFT  $f[k]$  of the following signal and plot  $f[k]$  using matlab for  $-5 \leq k \leq 5$ .

