

EECS 360  
Homework #6

1. Section 3.7 Participation Activities
  - 3.7.1: Frequency response function and output from sinusoidal input.
  - 3.7.2: Time-domain response and frequency response pairs
  - 3.7.3: Is this system sinusoidal response LTI (Linear Time Invariant)?
2. Challenge activity
  - 3.7.1: LTI sinusoidal response.
3. Exercise 3.7.1
4. Exercise 3.7.2
5. Exercise 3.7.3
6. Exercise 3.7.4
7. Exercise 3.7.8
8. Exercise 3.7.11
9. For  $h(t) = u(t)e^{-\alpha t}$ 
  - a. Find  $H(\omega)$ .
  - b. Put  $H(\omega)$  in the form of  $H(\omega) = R(\omega) + jI(\omega)$  where  $R(\omega)$  and  $I(\omega)$  are real functions.
  - c. Put  $H(\omega)$  in the form of  $H(\omega) = A(\omega)e^{j\theta(\omega)}$  where  $A(\omega)$  and  $\theta(\omega)$  are real functions.
  - d. For  $\alpha=0.1$  plot  $|H(\omega)|$ ,  $|H(\omega)|^2$ ,  $20\text{Log}(|H(\omega)|)$  and  $\theta(\omega)$ .