

# ME/ECE859-Spring 2008 Homework 6, Due date: 3/10/08 Monday

1. Re-derive the result of Example 7.1 of the textbook by adding more details. For instance,

(a) show the  $\mathcal{L}_2$  gain of the system (or  $\mathcal{H}_\infty$  norm of  $G(j\omega)$ ) is

$$\|G\|_\infty = \sup_{\omega \in R} \sigma_{\max}[G(j\omega)] = \sup_{\omega \in R} \|G(j\omega)\|_2.$$

(b) show Eq. (7.9) implies that  $\psi(t, y) \in [-\gamma_2 I, \gamma_2 I]$ .

(c) ...

2. Exercise 7.9 of the textbook.

3. Exercises 4.55-(1), (2) of the textbook.