EE213
Fall 2011
Problem Set 5
Due Oct. 14

1) (a) Consider the circuit below with \( k=3 \). Find the transfer function, poles, step response, impulse response, and response to the square pulse \( \Pi_3(t) = \Pi(t-1/2) = \begin{cases} 1, & 0 < t < 1 \\ 0, & \text{otherwise} \end{cases} \). For each time domain response, identify each term as arising from the circuit or from the input. Carefully plot each circuit response and discuss these results.

(b) Repeat (a) with \( k=4 \).
(c) From PS 4 #4) and this problem discuss the behavior of the circuit as \( k \) varies from 1 to \( \infty \).

2) For the following circuits find the transfer function, impulse response, step response, and the response due to \( \cos(t) u(t) \).
3) A&S 15.43, 15.46 (also use numeric and symbolic matlab to find solution).