

Assignment #02

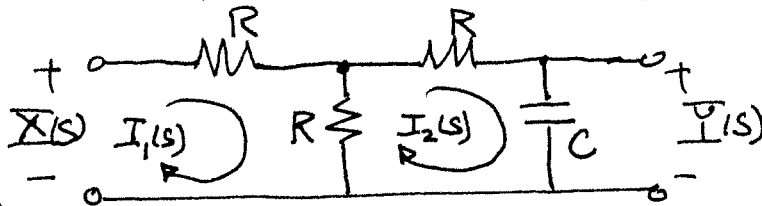
ECSE-2410 Signals & Systems - Spring 2011

Due Tue 02/01/11

1. Find the transfer function $H(s) = \frac{Y(s)}{X(s)}$ for the circuit shown, where all the R's are the same value.

(a) by voltage divider rule

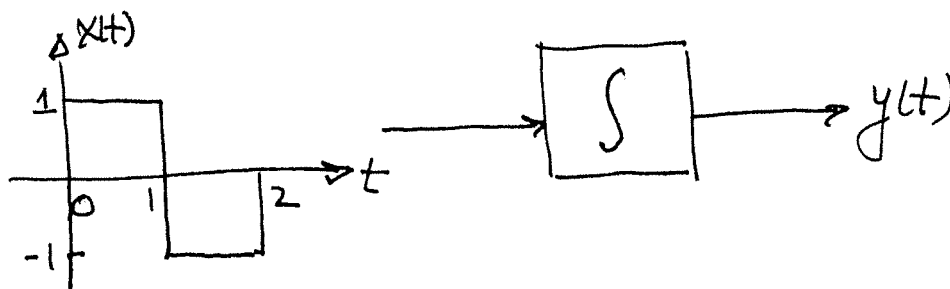
(b) by writing the voltage loop equations, solving for $I_2(s)$ and then using $Y(s) = \frac{1}{sC} I_2(s)$.



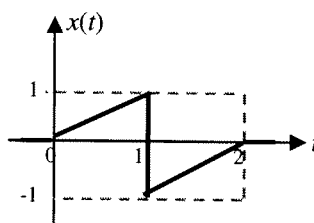
2. (a) Find $h(t)$ when $H(s) = \frac{2(s+3)}{s(s+1)(s+2)}$.

(b) verify the three residues in (a) using Matlab

3. Use Simulink to find $y(t)$, $0 \leq t \leq 3$, for the system



4. Express $x(t)$ in terms of step functions.



Note.
Omit problem 5
from A#02. We
didn't cover that
material in Friday's
class. So A#02
consists of
problems 1 thru 4.

5. For the signal, $x(t) = e^{-t}u(t)$,

(a) Sketch $v(t) = x(-t+1)$

(b) Find $V(s)$

