

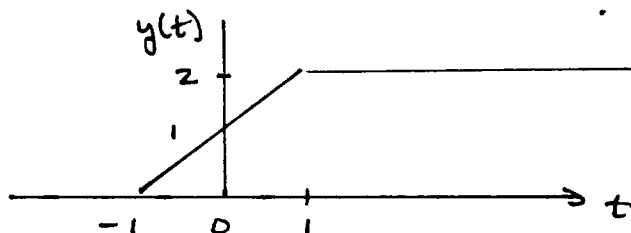
SEP 27 1995

RESERVE DESK

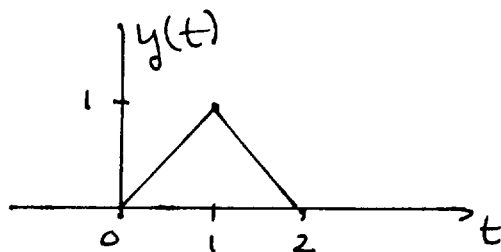
① (a) $\int_{-\infty}^{\infty} \sin(t) \delta(t - \pi/2) dt = \sin(\pi/2) \int_{-\infty}^{\infty} \delta(t - \pi/2) dt = 1$

(b) $\int_0^{\infty} \cos(t) \delta(t+1) dt = \cos(-1) \int_0^{\infty} \delta(t+1) dt = 0$
 lies at $t = -1$.

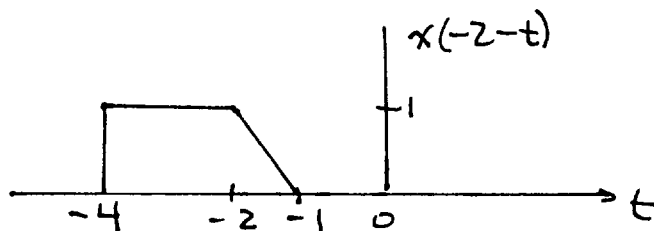
② (a)



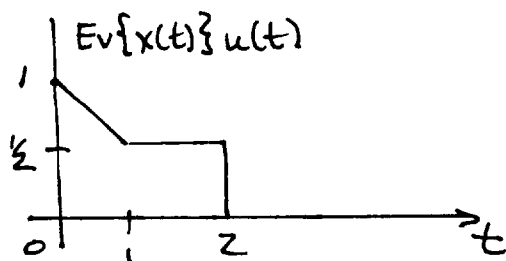
(b)



③ (a)



(b)



④ (a) (i) Has memory, non-linear, time-invariant, causal, stable

(ii) No memory, linear, time-varying, causal, stable

(iii) Has memory, linear, time-invariant, non-causal, ~~non-stable~~

(b) (i) noncausal, unstable

(ii) causal, stable

⑤

$e^{-t} u(t)$	$\frac{1}{1+j\omega}$
$e^{-(2-2j)t} u(t)$	$\frac{1}{j\omega + 2 - 2j}$
$e^{-3(t+3)} u(t+3)$	$\frac{e^{j3\omega}}{j\omega + 3}$
$\frac{1}{jt+1}$	$2\pi e^{\omega} u(-\omega)$

(from table)

(Either frequency shift or from table with $a = 2 - 2j$)

(time-shift)

(duality)