

EE 3054 QUIZ 8 - Spring 2012

① Find and sketch the derivative of $x(t)$.

Ⓐ $x(t) = e^{-|t|}$

Ⓑ $x(t) = \cos(t) u(t)$

② Find the running integral of $x(t)$. I.e. $y(t) = \int_{-\infty}^t x(\tau) d\tau$
and SKETCH

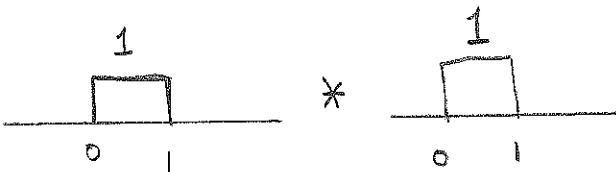
$x(t) = \cos(t) u(t)$

③ An LTI system is described by the rule

$$y(t) = x(t) - \int_{t-1}^t x(\tau) d\tau$$

Find the impulse response of the system.

④ Find the convolution:

Ⓐ 

Ⓑ $f(t) = \delta(t) - \frac{1}{4} \delta(t-2)$

$g(t) = \left(\frac{1}{2}\right)^t u(t)$

$y(t) = f(t) * g(t) = ?$

Ⓒ $f(t) = e^{-2t} u(t)$

$g(t) = u(t-3)$

$y(t) = f(t) * g(t) = ?$