

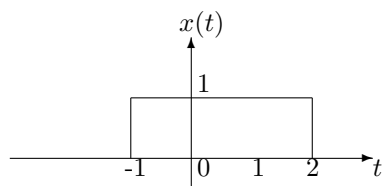
ELEC 255 tutorial. Practice 4.
Continuous-Time Linear Time-Invariant Systems
(III)

STUDENT #: _____ MARKS: _____/20

Problem 1: [5 marks/part]

(a) Consider an LTI system with input and output related through the equation $y(t) = \int_{-\infty}^t 3x(\tau - 2)d\tau$. What is the impulse response $h(t)$ for this system?

(b) Determine the response of the system when the input is as shown in the figure below.



Problem 2: [2 marks/part]

The following are the impulse responses of LTI systems. Determine whether each system is causal, memoryless, and/or stable. Justify your answers.

- (a) $h(t) = e^{-4t}u(t-2)$, (b) $h(t) = e^{-6t}u(3-t)$, (c) $h(t) = -40\delta(t-50)$,
(d) $h(t) = e^{2t}u(-1-t)$, (e) $h(t) = e^{-6|t|}$.