

Homework # 2 EE Signals and Linear Systems

1.- Demonstrate that the assertions below are correct.

□ **Time-Invariant** **Not Time-Invariant**

(a) $y_1(t) = 3 \frac{d^2x}{dt^2}$,

(d) $y_4(t) = t x(t)$,

(b) $y_2(t) = \sin[x(t)]$.

(e) $y_5(t) = x(t^2)$,

(c) $y_3(t) = \frac{x(t+2)}{x(t-1)}$

(f) $y_6(t) = x(-t)$.

Note1: Systems b and c are time-invariant, but not linear.

Note2: Systems d to f are linear, but not time-invariant.

2.- Write a Matlab program to reproduce the signals shown below

