

EE351 Homework 3

1) For each of the following systems, determine whether the system is (a) memoryless, (b) linear, (c) causal, (d) time-invariant, and (e) stable.

(1) $y(t) = 2x(t)$

(2) $y(t) = 2x^2(t)$

(3) $y(t) = x(t) + 6$

(4) $y(t) = x(t) \sin \omega t$

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

(6) $y(t) = t \cdot x(t) \cdot u(t)$

(7) $y(t) = x(t + 2)$

(8) $y(t) = x(t - 1)$

	Memoryless	Linear	Causal	Time-Invariant	Stable
System (1)					
System (2)					
System (3)					
System (4)					
System (5)					
System (6)					
System (7)					
System (8)					

2) Find the energy of the signal:

$x(t) = 6e^{-t}u(t)$