Signal Classification

1. a) $y(t) = x(t)\cos(3t)$; b) $y(n) = x(n-2) - 2x(n-8)$

For the above systems, determine the following properties:

i) Memory or memoryless

depends on past or future

independent of past or future

ii) Causal or non causal

depends on past/present but not future

iii) Time variant or invariant

y(n,k)=y(n-k) for all value

iv) Linear or non linear

a'y'(n)+a"y"(n)= y(n)

v) Stable or unstable

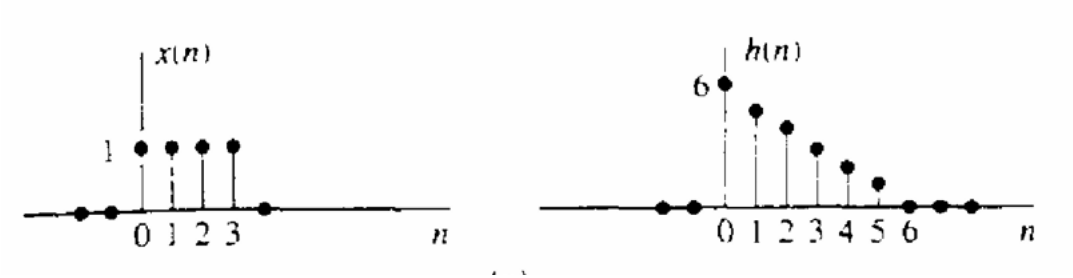
Answer: a) Memoryless, causal, time variant, linear, stable

b) Memory, causal, time invariant, linear, stable

2. Determine the convolution of following signals

a) $x(n) = \{0, 1, 4, 3\}$ and $h(n) = \{1, 0, -1, -1\}$

b)



c) Also find the cross correlation for a) and b)