

# HW 6 Signals + Systems

①

$$x[n] = [0, -1, -2, -1, 0, 1, 2, 1, 0, 0]$$

$$\text{and } h[n] = [0, 0, 0, 0, 1, 1, -1, -1, 0, 0]$$

Tabulation

$h[n]$	0	0	0	0	1	1	-1	-1	0	0
$x[n]$	0	0	0	0	0	0	0	0	0	0
-1	0	0	0	0	-1	-1	1	1	0	0
-2	0	0	0	0	-2	-2	2	2	0	0
-1	0	0	0	0	-1	-1	1	1	0	0
0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	1	1	-1	-1	0	0
2	0	0	0	0	2	2	-2	-2	0	0
1	0	0	0	0	1	1	-1	-1	0	0
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0

So,  $y[-8] = 0$ ,  $y[-7] = 0 + 0 = 0$ ,  $y[-6] = 0 + 0 + 0 = 0$   
 $y[-5] = 0 + 0 + 0 + 0 = 0$ ,  $y[-4] = 0 + 0 + 0 + 0 + 0 = 0$   
 $y[-3] = 0 + 0 + 0 + 0 - 1 + 0 = -1$

also  $y[-2] = -2 - 1 = -3$ ,  $y[-1] = -1 - 2 + 1 = -2$ ,  $y[0] = -1 + 2 + 1 = 2$   
 $y[1] = 1 + 1 + 2 = 4$ ,  $y[2] = 2 + 1 + 1 = 4$ ,  $y[3] = 1 + 2 + 1 = 2$   
 $y[4] = 1 - 2 + 1 = 0$ ,  $y[5] = -1 - 2 = -3$ ,  $y[6] = 1$   
 $y[7] = y[10] = 0$

Plot

