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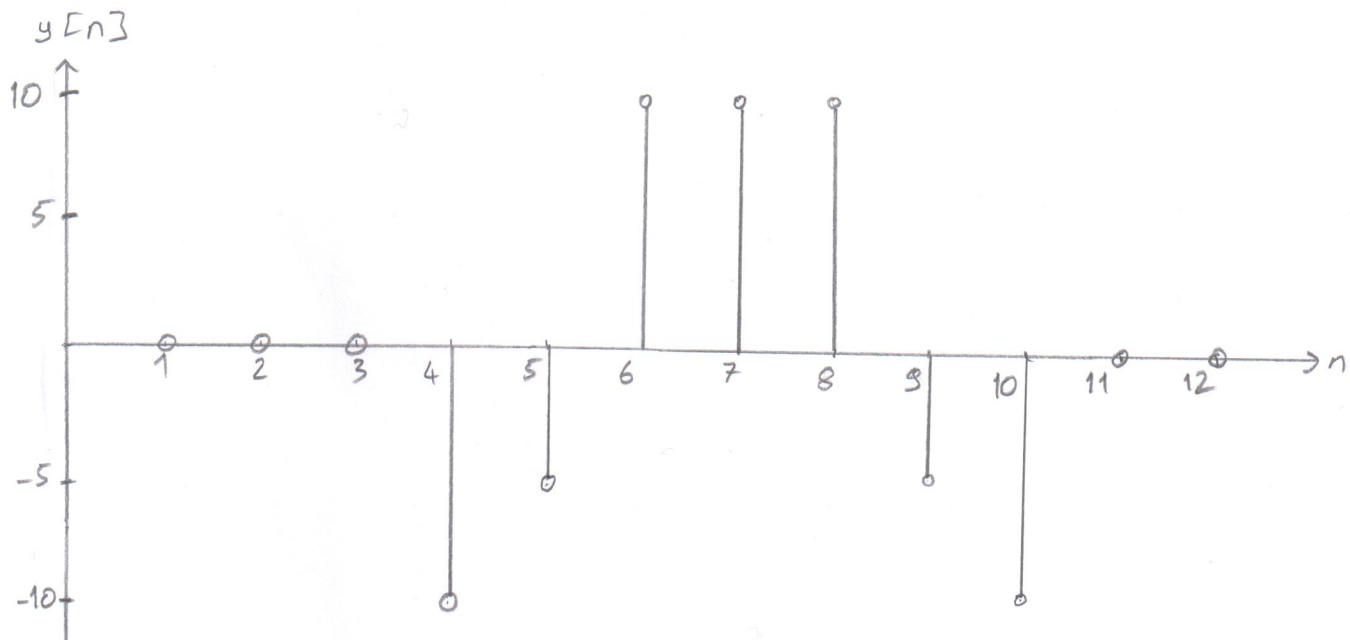
BLG354E Signals and Systems HW1

1) $N = -1 \Rightarrow$ Index of the first non-zero value of $x[n]$
$M = 5 \Rightarrow$ Index of the first non-zero value of $h[n]$

	10	5	0	-5	-10		coefficients of $x[n]$
x	-1	0	1				coefficients of $h[n]$
	-10	-5	0	5	10		
		0	0	0	0	0	
+			10	5	0	-5	-10
	-10	-5	10	10	10	-5	-10

$y[n] = 0$ for $n < N + M = 4$

$y[n] = -10\,\delta[n-4] - 5\,\delta[n-5] + 10\,\delta[n-6] + 10\,\delta[n-7] +$
$\qquad + 10\,\delta[n-8] - 5\,\delta[n-9] - 10\,\delta[n-10]$

2) $N = 0 \Rightarrow$ Index of the first non-zero value of $X[n]$
   $M = 0 \Rightarrow$ Index of the first non-zero value of $h[n]$

	5	10	15	20		coefficients of $X[n]$
×	1	2	3	4		coefficients of $h[n]$

	5	10	15	20			
		10	20	30	40		
			15	30	45	60	
+				20	40	60	80
	5	20	50	100	125	120	80

$y[n] = 0$ for $n < N+M = 0$

$y[n] = 5\delta[n] + 20\delta[n-1] + 50\delta[n-2] + 100\delta[n-3] +$
$\quad\quad + 125\delta[n-4] + 120\delta[n-5] + 80\delta[n-6]$