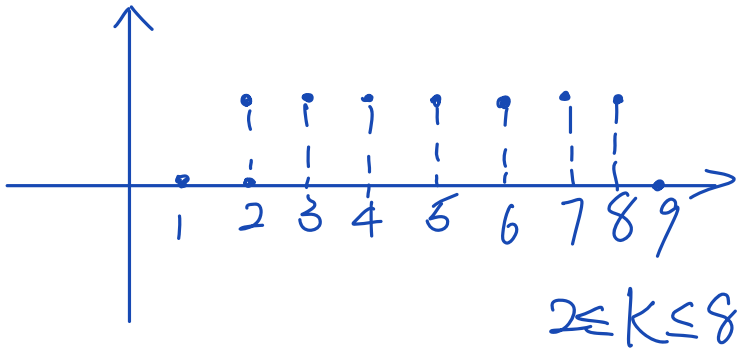
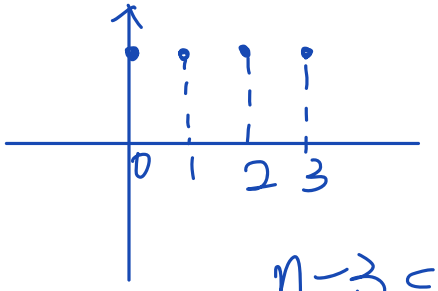
1. $X[n]$



$2 \le k \le 8$

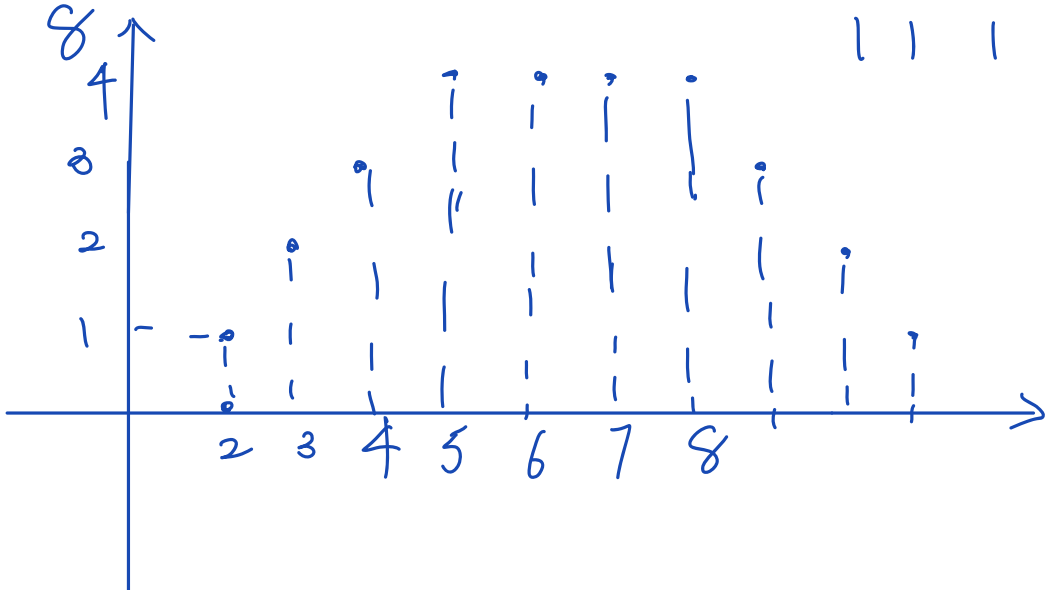
$h_1[n]$



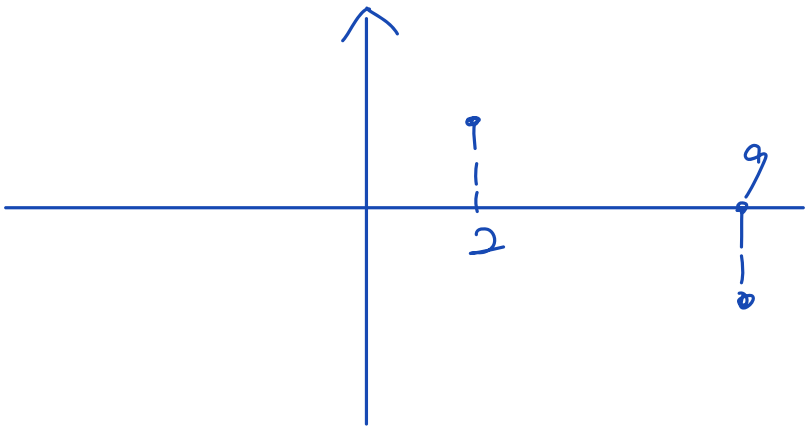
$n-3 \le 8 \quad n \le 11$

$11 \ge n \ge 2$

n	2	3	4	5	6	7	8	9	10	11
k										
2	1	1	1	1						
3		1	1	1	1					
4			1	1	1	1				
5				1	1	1	1			
6					1	1	1	1		
7						1	1	1	1	
8							1	1	1	1



$$y_2[n] = x[n] * h_2[n]$$
$$= x[n] - x[n-1]$$
$$= u[n-2] - u[n-9] - u[n-3] + u[n-10]$$



2. t = np.linspace(0, 2, 1000, endpoint = False)

3. rand return numbers sampled from a uniform distribution over (0, 1], randn return samples from normal distribution with mean 0 and variance of 1