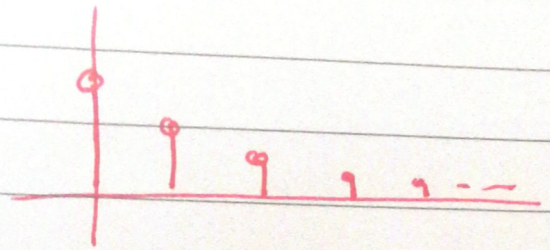
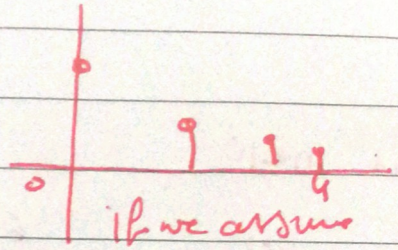
$h[n] = a^n u[n]$, $x[n] = B^n(u[n] - u[n-5])$

$h[n]$



if we assume $|a| < 1$

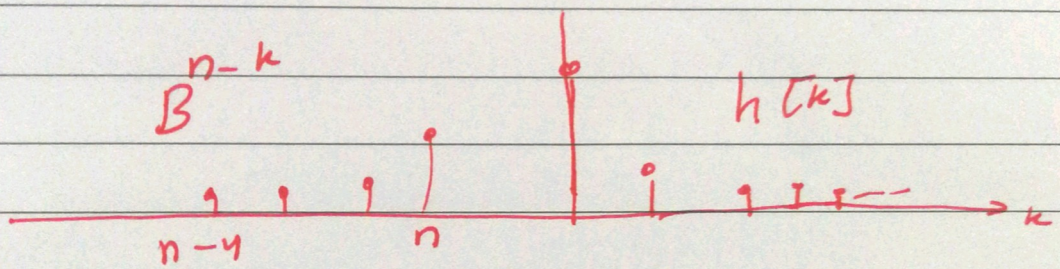
$[0, \infty]$



if we assume $|B| < 1$

$[0, 4]$

$[0, 4, \infty)$



when $n < 0$

$y[n] = 0$

when $0 \le n \le 4$

$$y[n] = \sum_{k=0}^{n} B^{n-k} a^k = B^n \sum_{k=0}^{n} (B^{-1}a)^k$$

$$= B^n \cdot \frac{1 - (B^{-1}a)^{n+1}}{1 - (B^{-1}a)}$$

when $4 < n < \infty$

$$y[n] = B^n \sum_{k=n-4}^{n} B^{-k} a^k = B^n \frac{(B^{-1}a)^{n-4} - (B^{-1}a)^{n+1}}{1 - (B^{-1}a)}$$

when $n = 0$

$$y[0] = B^{(0)} \cdot \frac{1 - (B^{-1}a)^1}{1 - (B^{-1}a)} = 1$$

n = 2

$$y[2] = (\beta)^2 \cdot \frac{1 - (\beta^{-1}a)^3}{1 - (\beta^{-1}a)}$$; assume $a = 0.6$, $\beta = 0.8$

when n = 10

$$y[10] = \beta^{(10)} \cdot \frac{(\beta^{-1}a)^6 - (\beta^{-1}a)^{11}}{1 - (\beta^{-1}a)}$$; assume $a = 0.6$, $\beta = 0.8$