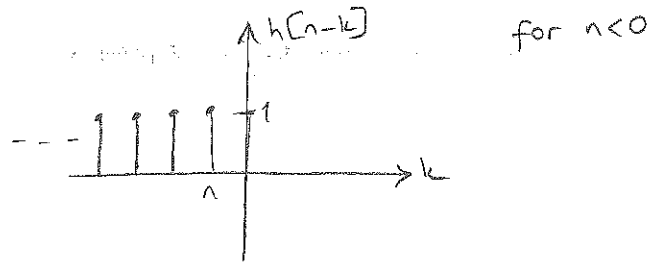
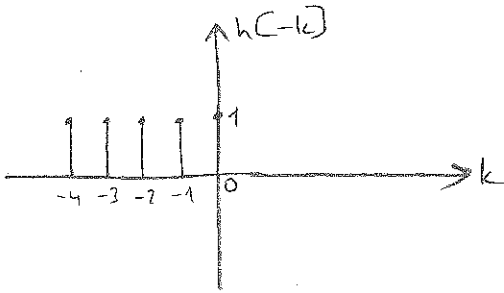
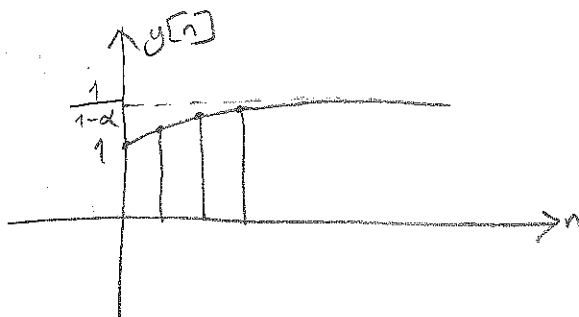
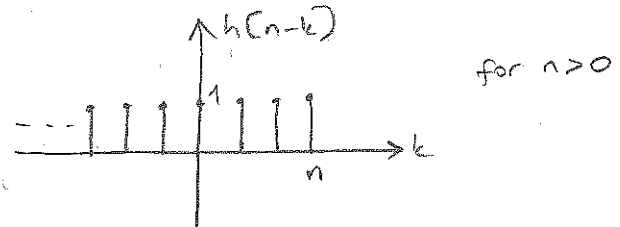


$$y[n] = x[k] * h[k]$$

$$y[n] = \sum_{k=-\infty}^{\infty} x[k] h[n-k]$$



$$y[n] = \sum_{k=0}^n \alpha^k = \frac{1 - \alpha^{n+1}}{1 - \alpha}$$



$$0 < \alpha < 1$$

PROPERTIES OF CONVOLUTION

Commutative Property

$$x[n] * h[n] = h[n] * x[n]$$

Distributive Property

$$x[n] * (h_1[n] + h_2[n]) = x[n] * h_1[n] + x[n] * h_2[n]$$

Associative Property

$$x[n] * (h_1[n] * h_2[n]) = (x[n] * h_1[n]) * h_2[n]$$