convolution summary: $y[n] = \sum_k x[k]h[n-k]$

$x[k]$

N_1 N_2

$y[n] = 0, \quad n < N_1 + M_1$

k

$n - M_2$ $n + M_1$

start

$y[n] = \sum_{k=N_1}^{n-M_1} x[k]h[n-k], \quad N_1 + M_1 \le n < N_1 + M_2$

$h[n-k]$

$n - M_2$ $n - M_1$

$y[n] = \sum_{k=n-M_2}^{n-M_1} x[k]h[n-k], \quad N_1 + M_2 \le n \le N_2 + M_1$

$h[n-k]$

$n - M_2$ $n + M_1$

$y[n] = \sum_{k=n-M_2}^{N_2} x[k]h[n-k], \quad N_2 + M_1 < n \le N_2 + M_2$

$h[n-k]$

$n - M_2$ $n - M_1$

end

$y[n] = 0, \quad N_2 + M_2 < n$

k

$n - M_2$ $n - M_1$