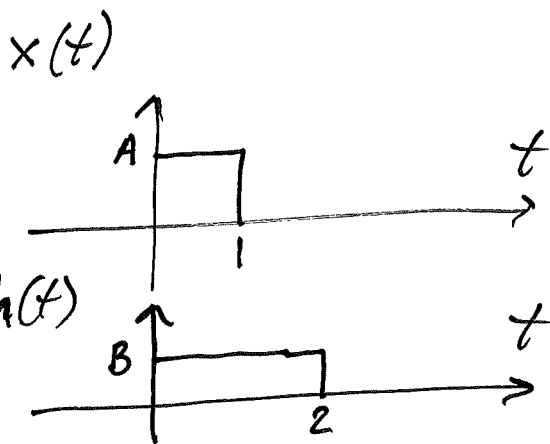
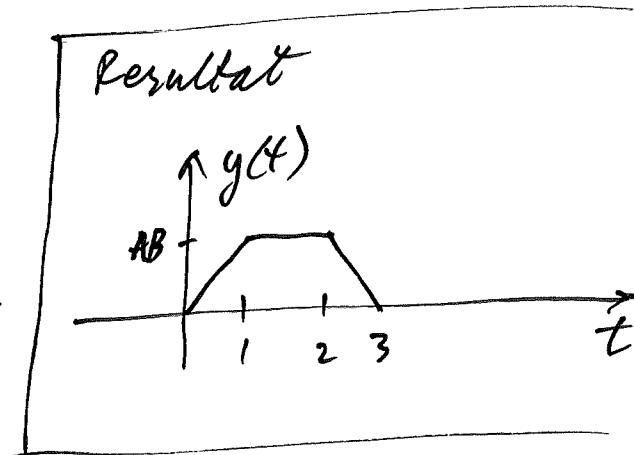
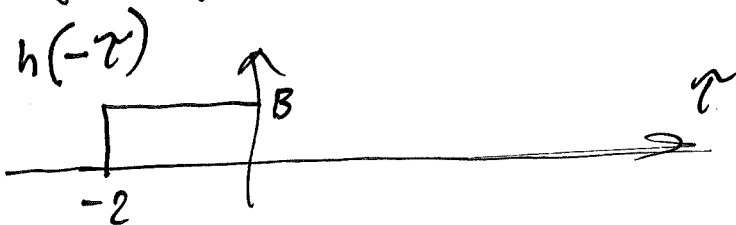


Ex faltning. $x(t) = \begin{cases} A, & 0 \leq t < 1 \\ 0, & \text{f.ö.} \end{cases}$ $h(t) = \begin{cases} B, & 0 \leq t < 2 \\ 0, & \text{f.ö.} \end{cases}$

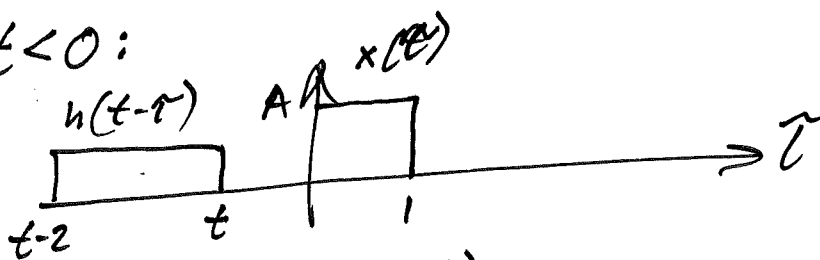


Vi söker
 $y(t) = (x * h)(t)$
 $= \int_{-\infty}^{\infty} x(\tau) h(t-\tau) d\tau$

Hjälpfigur:

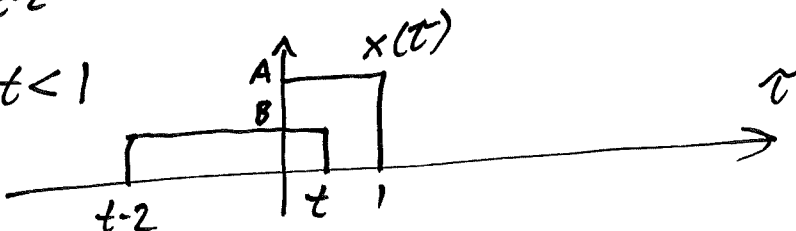


$t < 0$:



Inget överlapp
 $\Rightarrow x(\tau) h(t-\tau) = 0 \forall \tau$
 $\Rightarrow y(t) = 0, t < 0$

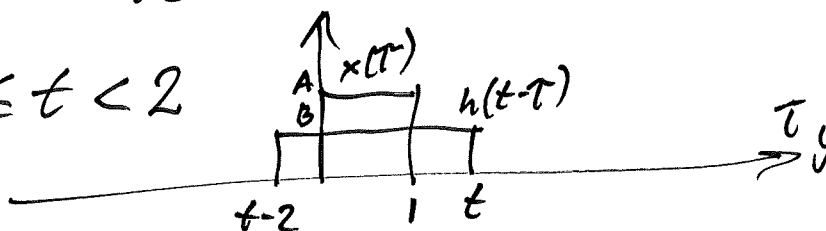
$0 \leq t < 1$



$y(t) = \int_0^t A \cdot B d\tau = ABt, 0 \leq t < 1$

Överlapp från 0 till 1

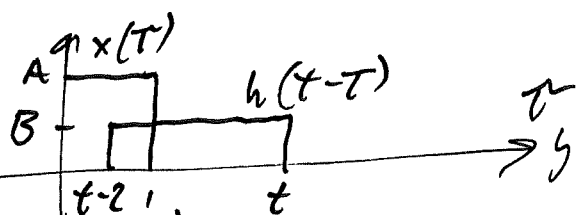
$1 \leq t < 2$



$y(t) = \int_0^1 A \cdot B d\tau = AB, 1 \leq t < 2$

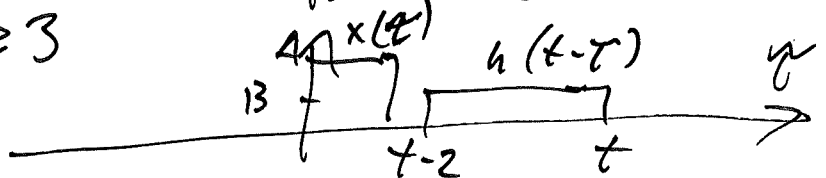
Överlapp från t-2 till 1

$2 \leq t < 3$



$y(t) = \int_{t-2}^1 A \cdot B d\tau = (1 - (t-2))AB = (3-t)AB, 2 \leq t < 3$

$t \geq 3$



Inget överlapp
 $\Rightarrow y(t) = 0, t \geq 3$