

$$2.10) \quad x(t) = \begin{cases} 1 & 0 \leq t \leq 1 \\ 0 & \text{else} \end{cases}$$

$$h(t) = x(t/\alpha) \quad 0 \leq \alpha \leq 1$$

$$y(t) = \int_{-\infty}^{\infty} x(t-\tau) \times \left( \frac{\tau}{\alpha} \right) d\tau$$

$\cancel{0 \leq t - \tau \leq 1}$

$$0 \leq \frac{\tau}{\alpha} \leq 1$$

$$(0 \leq \tau \leq \alpha)$$

$$y(t) = \int_0^{\alpha} x(\frac{\tau}{\alpha}) d\tau + \int_{t-\alpha}^t x(\tau) d\tau$$

$$= \tau \Big|_0^\alpha + \tau \Big|_{t-\alpha}^t$$

$$0 \leq \frac{t-\tau}{\alpha} \leq 1$$

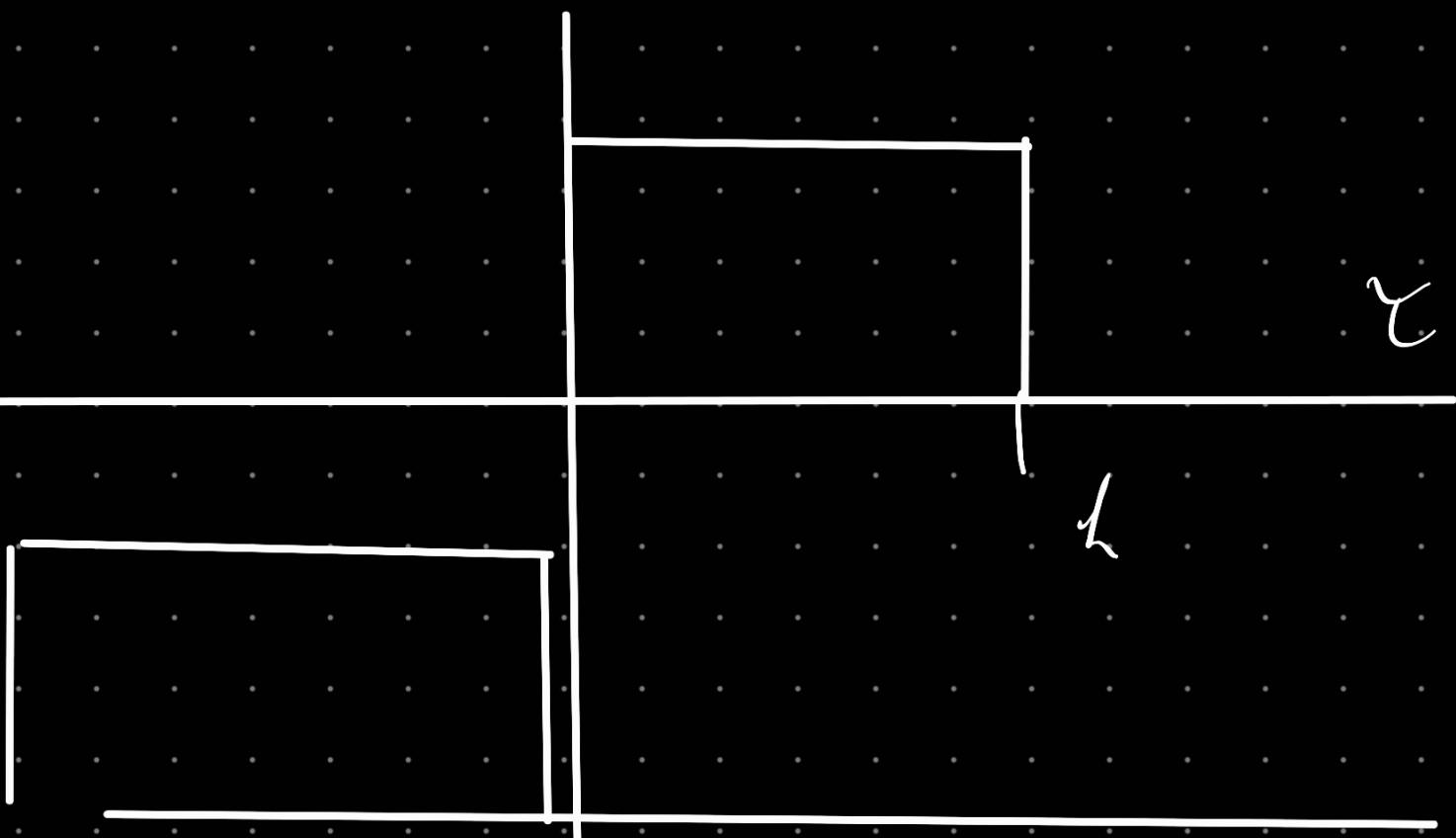
$$t \geq \tau \geq t - \alpha$$

$$x(\tau) \left\{ \begin{array}{ll} 1 & 0 \leq \tau \leq 1 \\ 0 & \text{o.c.} \end{array} \right.$$

$$y(t) = \int_{-\infty}^{\infty} x(\tau) \cdot x\left(\frac{t-\tau}{\alpha}\right) d\tau$$

↓                      ↓  
 1     $0 \leq \tau \leq 1$     1     $0 \leq \frac{t-\tau}{\alpha} \leq 1$   
 0    o.c.              0     $t \geq \tau \geq t - \alpha$

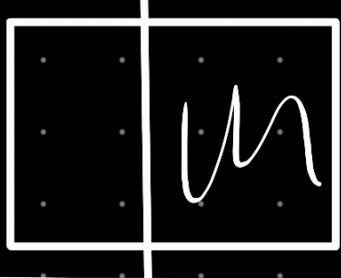
Par  $t < 0$



$t - \alpha$        $t$

$$Y(t) = 0$$

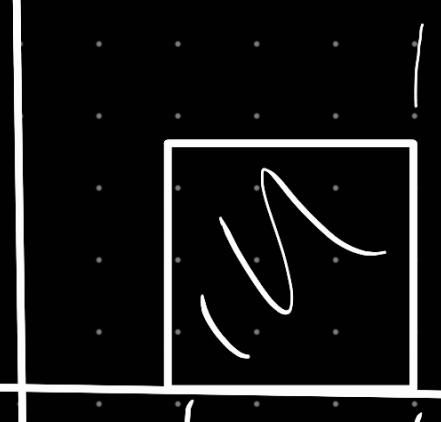
Par  $0 < t < \alpha$



$t - \alpha$        $0$        $t$

$$\int_0^t dx = x \Big|_0^t = t$$

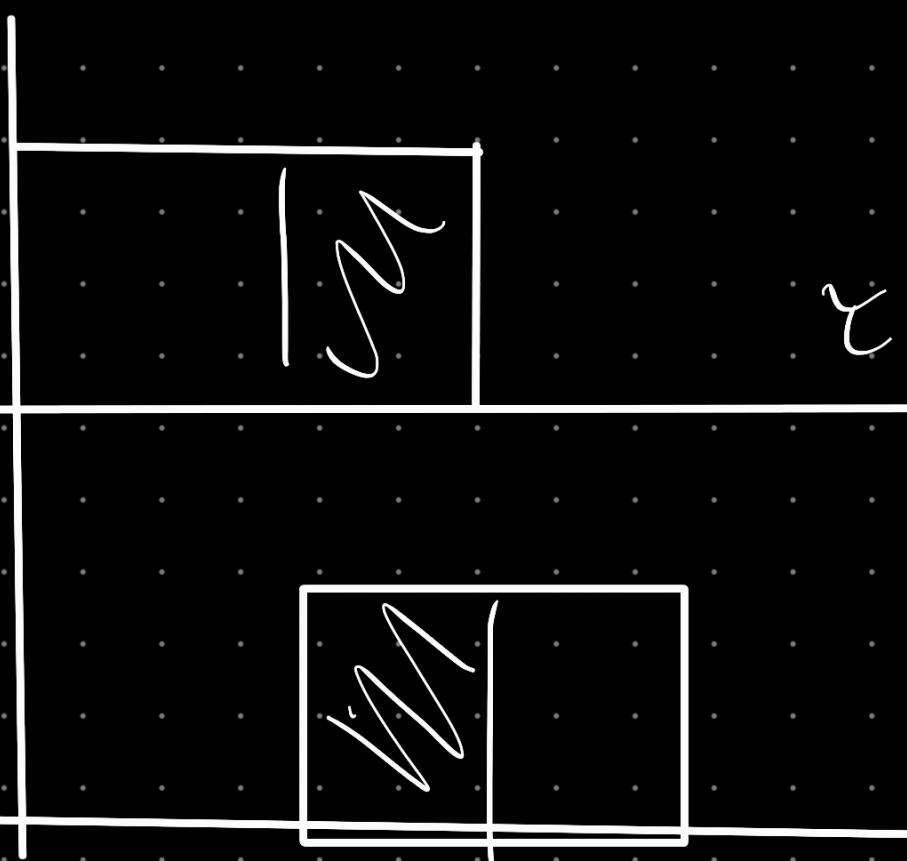
Paru  $\alpha < t < t$



$$1$$

$$\int_{t-\alpha}^t dx = x \Big|_{t-\alpha}^t = t + \alpha - t$$

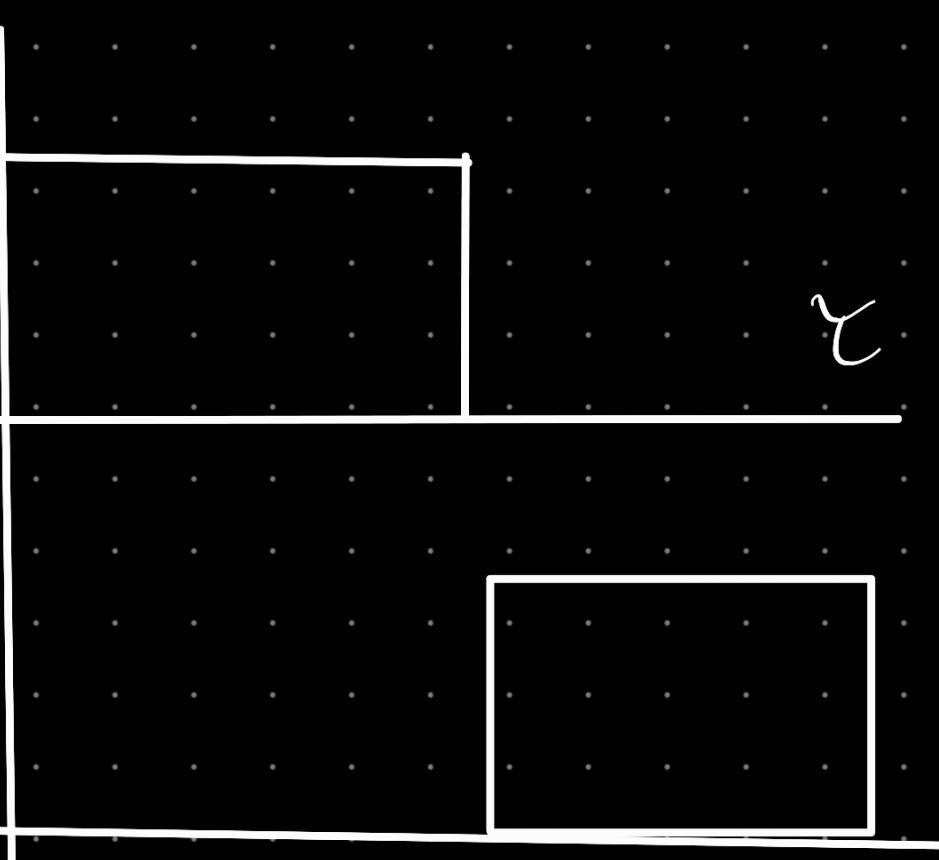
Parz  $1 < t < 1 + \alpha$



$t - \alpha \quad 1 \quad t$

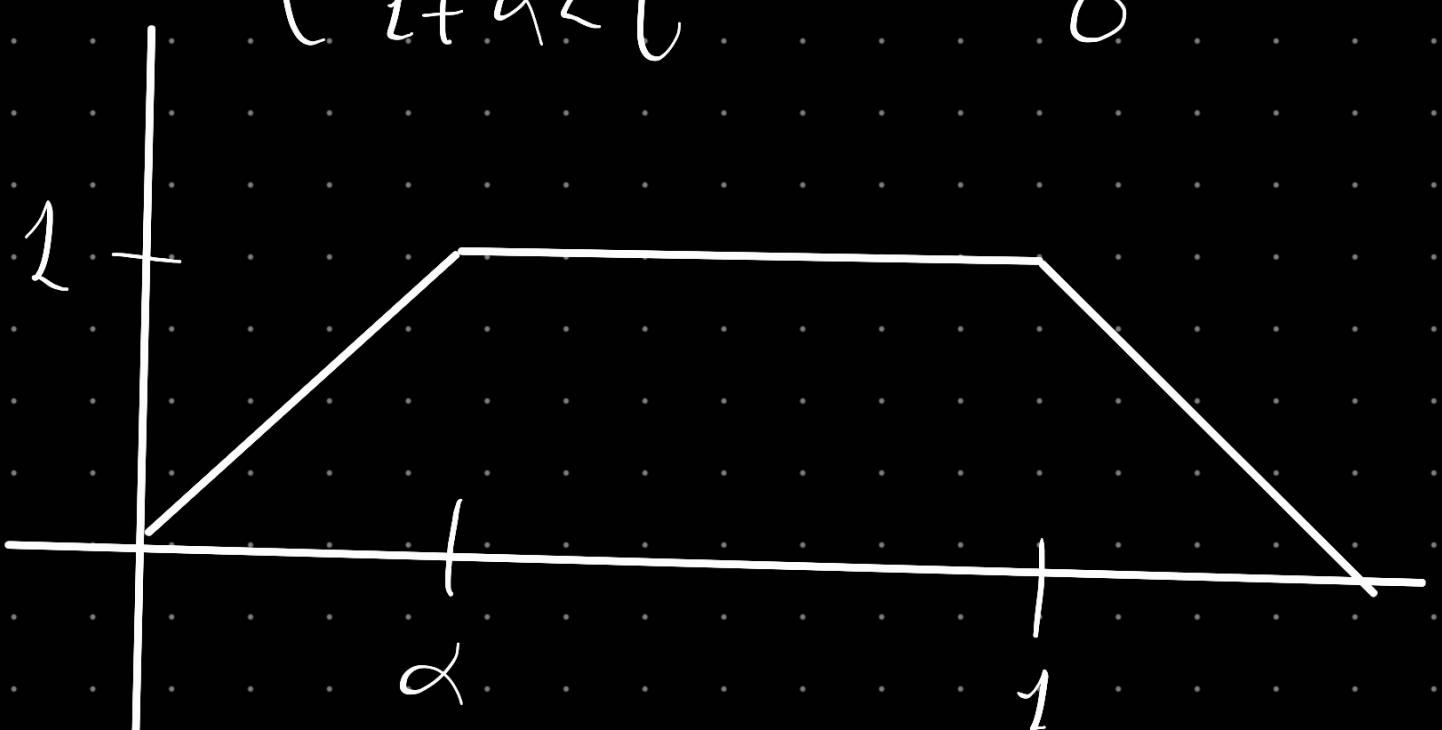
$$\int_{t-\alpha}^1 d\chi = 1 - t + \alpha$$

Parz  $1 + \alpha < t$

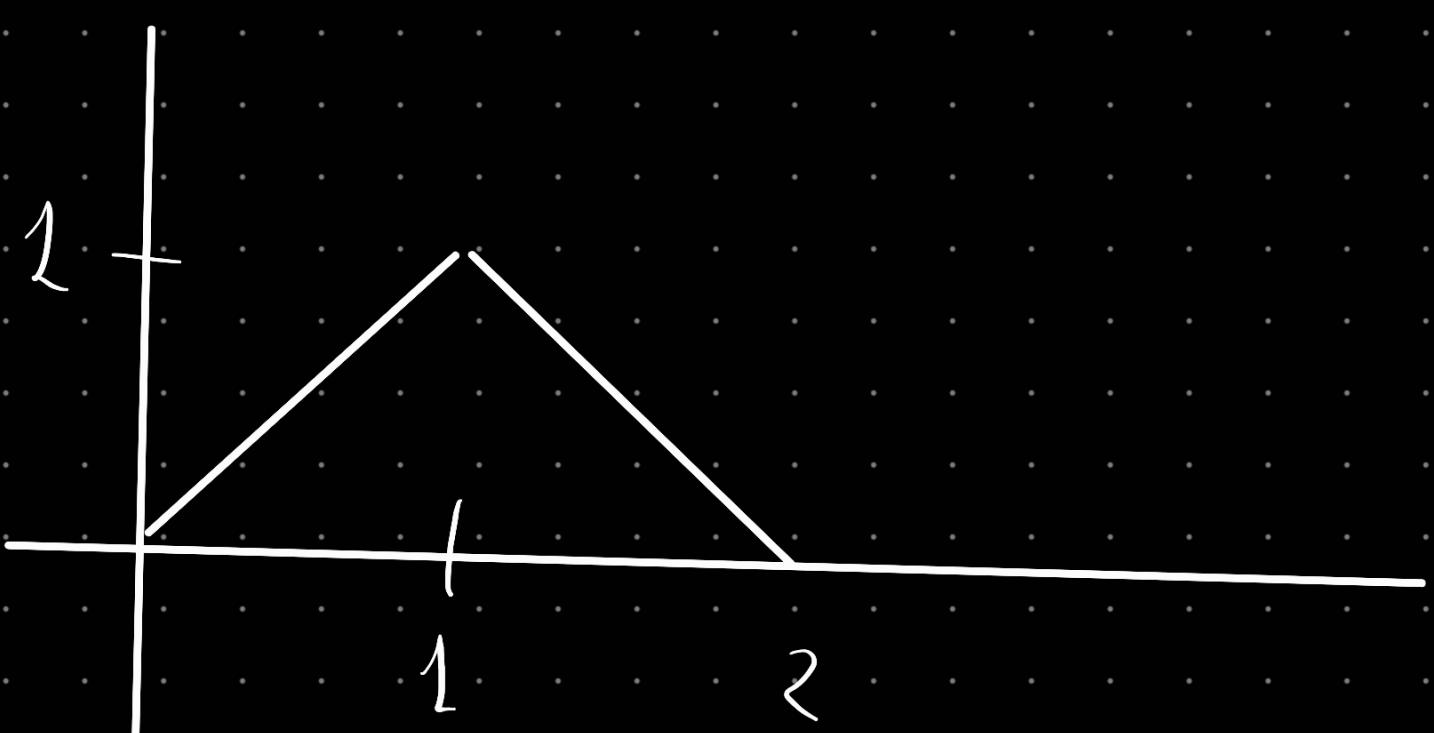


$t - \alpha \quad t$

$$y(t) = \begin{cases} t & t < 0 \\ t^\alpha & 0 < t < 1 \\ 1 - t + \alpha & 1 < t < 1+\alpha \\ 0 & t > 1+\alpha \end{cases}$$



b)  $\alpha = k \rho_1 \tau_1$  cases



$$y(t) = \begin{cases} t & t < 0 \\ t & 0 < t < 1 \\ 1-t & 1 < t < 2 \\ 0 & t > 2 \end{cases}$$

$$y'(t) = \begin{cases} t < 0 & 0 \\ 0 < t < 1 & 1 \\ 1 < t < 2 & -1 \\ 2 < t & 0 \end{cases}$$

3 discontinuidades

2.22)

a)

I)  $\alpha \neq \beta$

$$y(t) = \int_{-\infty}^{\infty} e^{-\alpha \tau} \cdot e^{-\beta(t-\tau)} u(\tau) u(t-\tau) d\tau$$

(D 0 > t  
solo ps/ia'  
activo de  
origen)

$$= u(t) \int_0^t e^{-\alpha \tau} \cdot e^{-\beta(t-\tau)} d\tau$$

$$= u(t) \left[ e^{(\beta - \alpha)t} \right]_0^t$$

$$= \frac{e^{\beta t}}{\beta - \alpha} \left( e^{(\beta - \alpha)t} - 1 \right) u(t)$$

$$\text{II) } \beta = \alpha$$

$$y(t) = \int_{-\infty}^t e^{-\alpha \tau} \cdot e^{-\alpha(t-\tau)} u(\tau) u(t-\tau) d\tau$$

$\rightarrow$  solución

algunas de

o q t

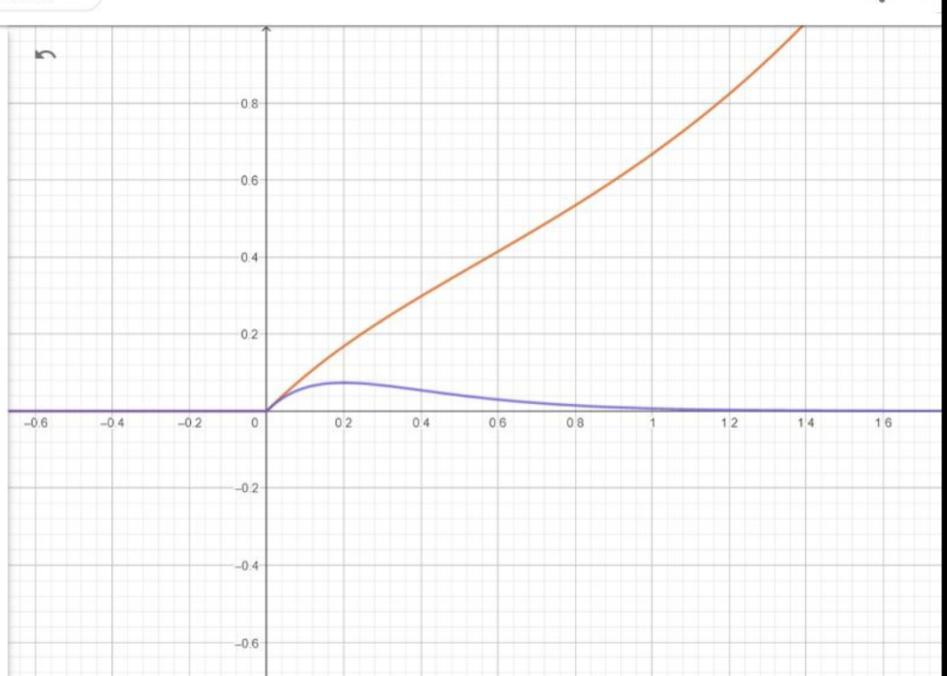
$$u(t) \int_0^t e^{-\alpha \tau} \cdot e^{-\alpha(t-\tau)} d\tau$$

$$u(t) e^{-\alpha t} \int_0^t d\tau$$

$$t e^{-\alpha t} u(t)$$

GeoGebra Suite Calculadora Calc. Gráfica

| Algebra      | $f2(x) = \begin{cases} \frac{2}{3}(e^{bx} + e^{ax} - e^{(b-a)x}) & : 1 < x \leq 3 \\ \frac{1}{2}(-e^2 + e^{2(x-5)}) & : 3 < x \leq 6 \\ 0 & : \text{en caso contrario} \end{cases}$   |
|--------------|---|
| Herramientas | $a = 5$<br>-5 <input type="range"/> 5   |
| Tabla        | $b = 1$<br>-5 <input type="range"/> 5   |
|              | $f11(x) = \text{Si}\left(x \leq 0, 0, \frac{e^{bx}}{b-a} \left(e^{(b-a)x} - 1\right)\right)$<br>$= \begin{cases} 0 & : x \leq 0 \\ \frac{e^{bx}}{1-5} \left(e^{(1-5)x} - 1\right) & : \text{en caso contrario} \end{cases}$ |
|              | $f12(x) = \text{Si}\left(x \leq 0, 0, x e^{-ax}\right)$<br>$= \begin{cases} 0 & : x \leq 0 \\ x e^{-5x} & : \text{en caso contrario} \end{cases}$   |
| +            | Entrada...  |



b)

$$y(t) = \int_{-\infty}^{\infty} [u(\tau) - 2u(\tau-2) + u(\tau-5)] e^{2(t-\tau)} u(1-t+\tau) d\tau$$

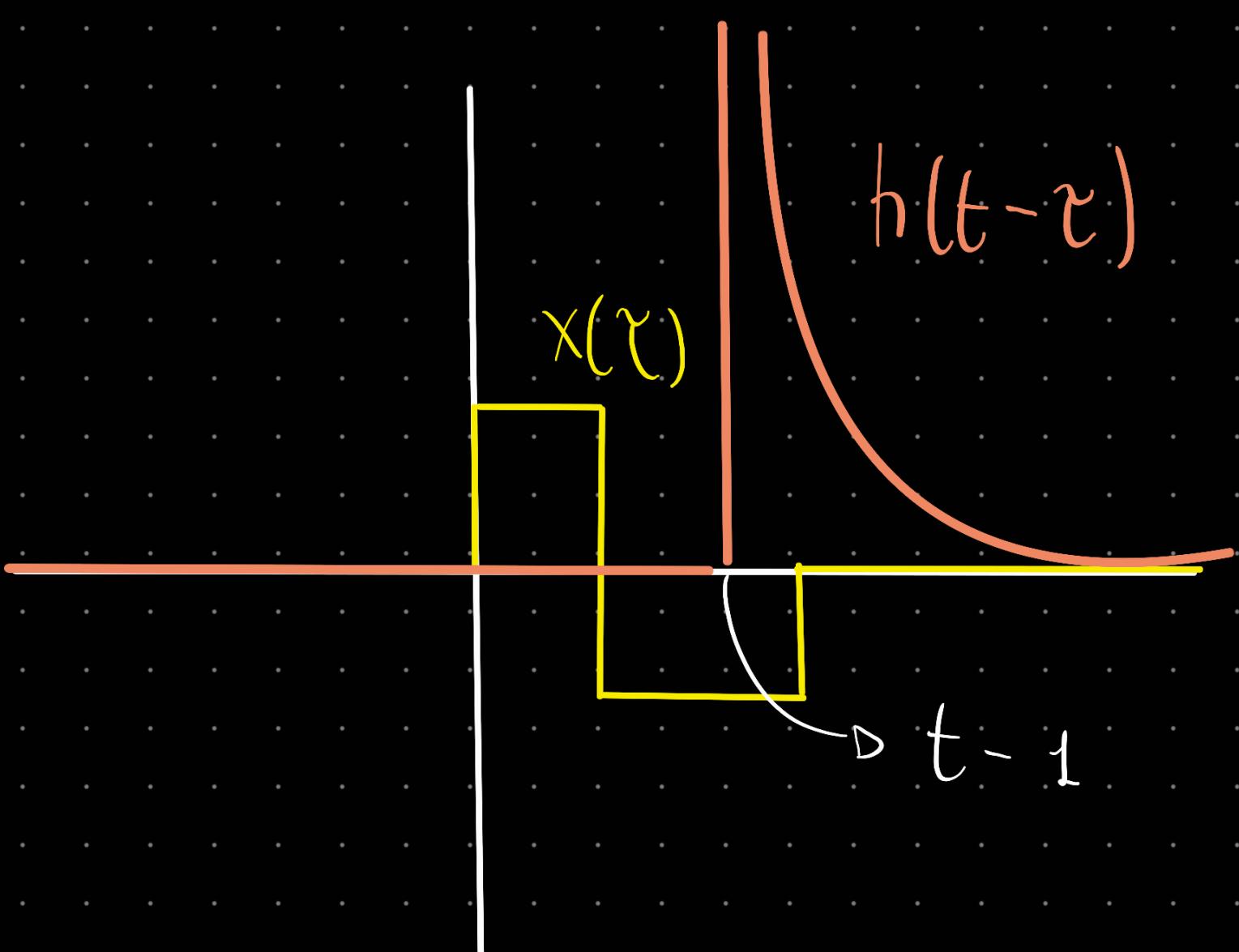
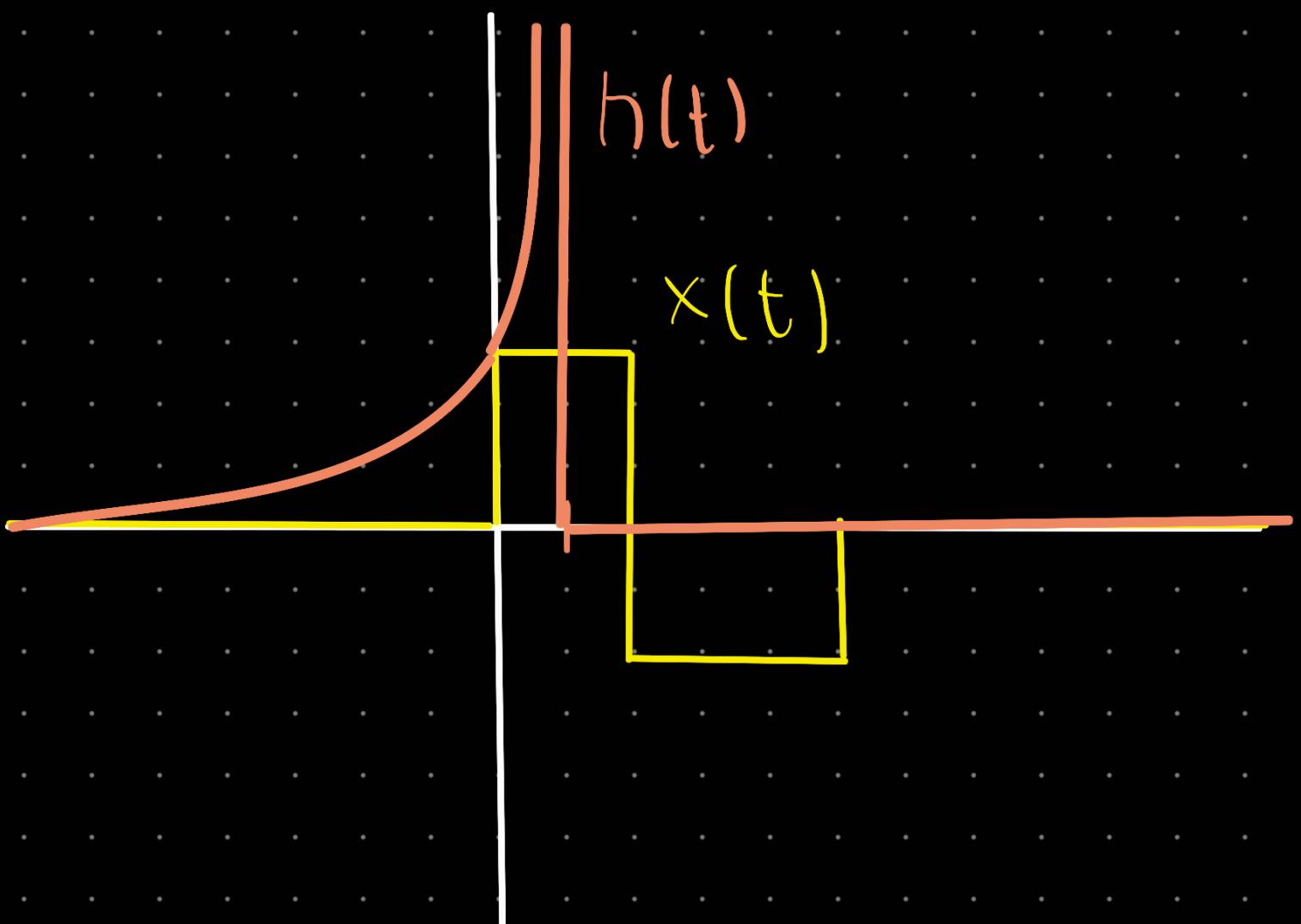
drücke

$\tau > 0$        $\tau > 2$        $\tau > 5$

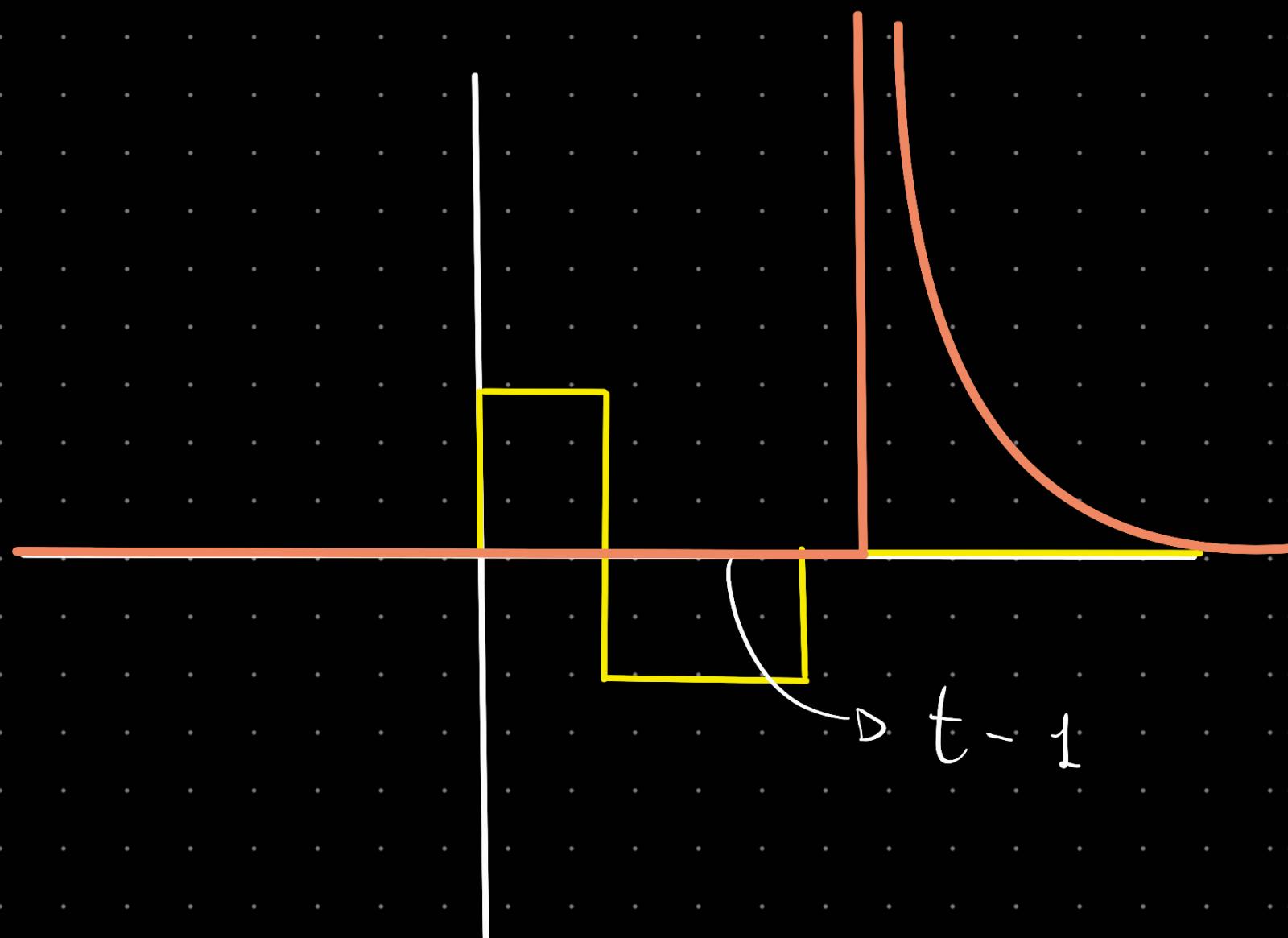
$t > 3$

$e^{2t} e^{-2\tau}$

$\tau > t-1$   
hast



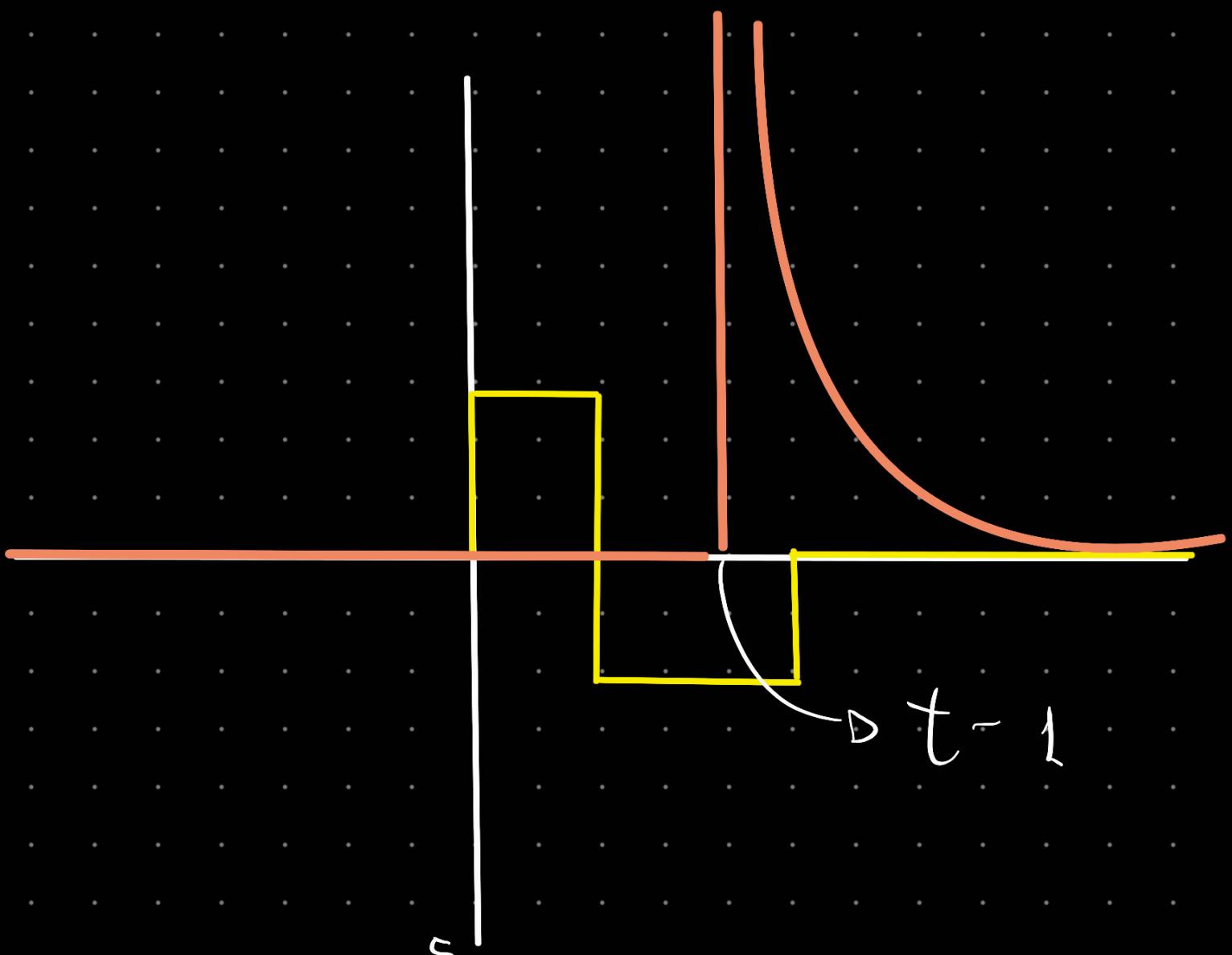
para  $t-1 \geq 5 \rightarrow t \geq 6$



$$\gamma(t) = 0$$

For  $2 \leq t-1 \leq 5$

$3 \leq t \leq 6$

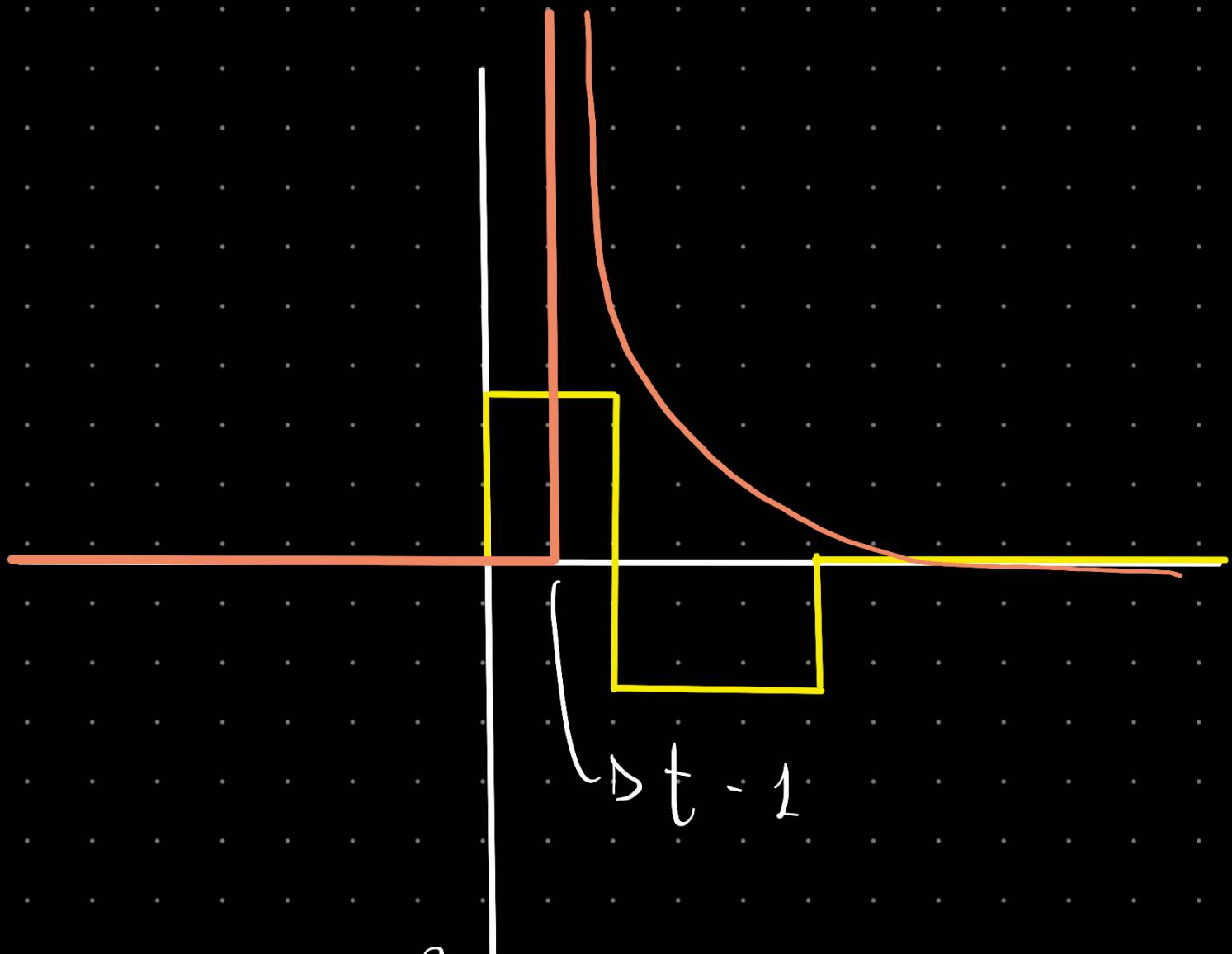


$$y(t) = - \int_{t-1}^s e^{z(t-\tau)} d\tau =$$

$$= \frac{1}{z} \left[ e^{z(s-t)} - e^{z(t-1)} \right]$$

for  $0 \leq t-1 \leq 2$

$1 \leq t \leq 3$

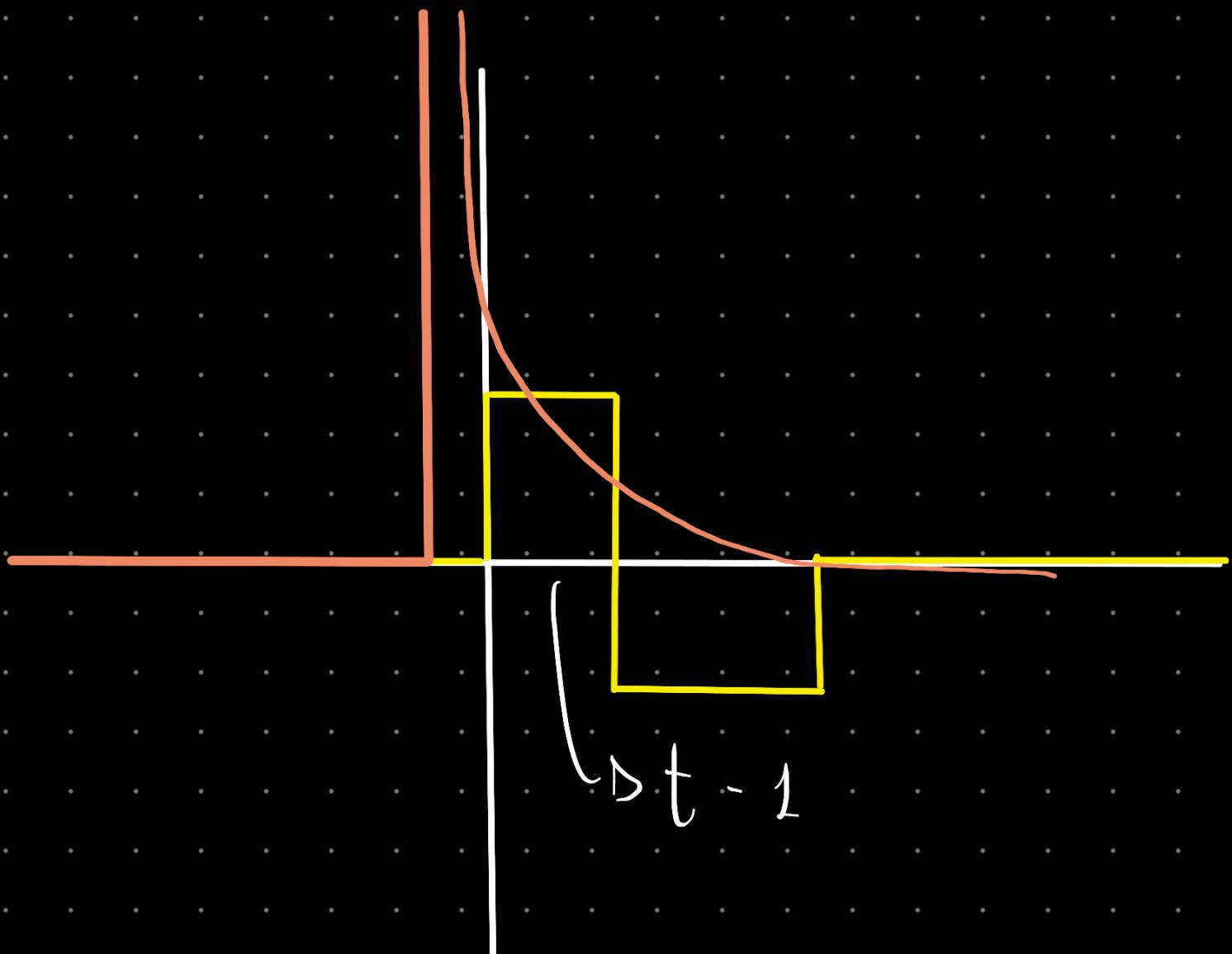


$$y(t) = \int_{t-1}^2 e^{2(t-\tau)} d\tau - \int_2^5 e^{2(t-\tau)} d\tau$$

$$y(t) = \frac{1}{2} \left( -e^{2t-4} + e^2 + e^{2t-10} - e^{2t-4} \right)$$

$$= \frac{1}{2} \left[ e^2 - 2e^{2(t-2)} + e^{2(t-5)} \right]$$

para  $t - 1 \leq 0$   
 $t < 1$

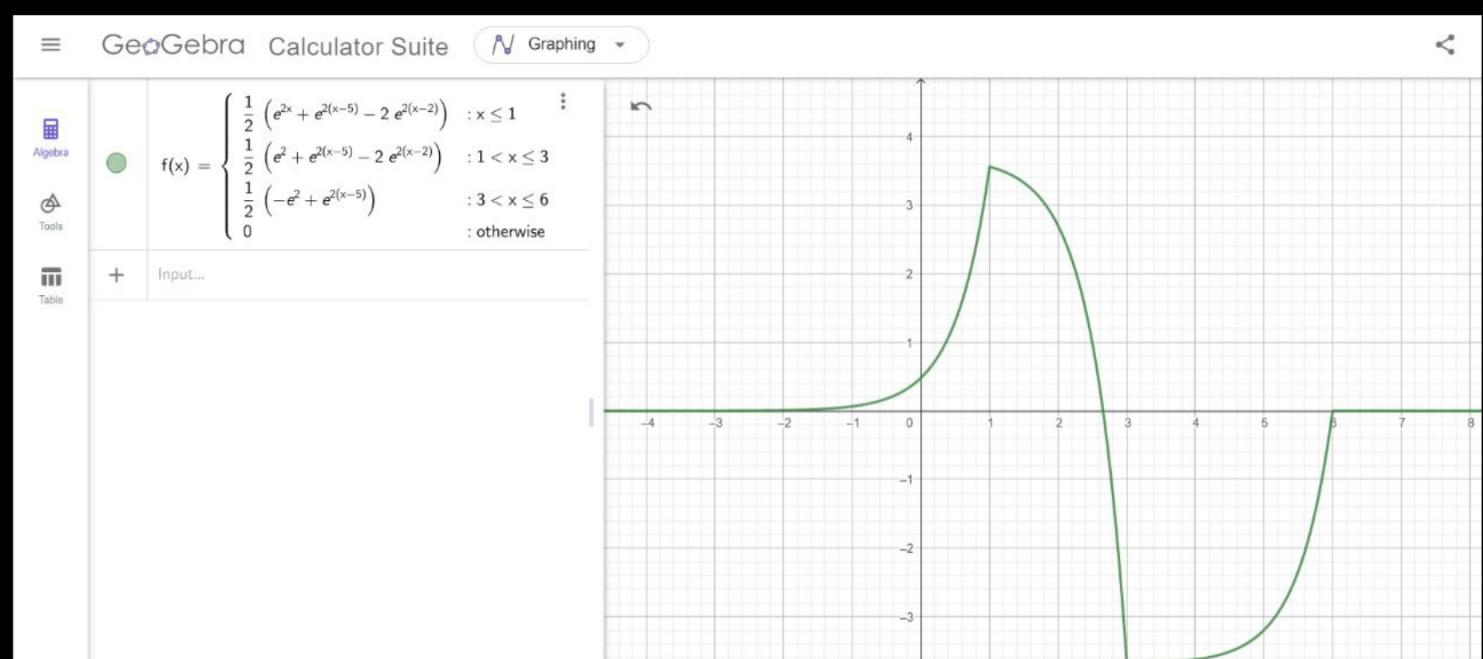


$$y(t) = \int_0^2 e^{2(t-\tau)} d\tau - \int_2^5 e^{2(t-\tau)} d\tau$$

$$y(t) = \frac{1}{2} \left( -e^{\widehat{2t-4}} + e^{\widehat{2t}} + e^{\widehat{2t-10}} - e^{\widehat{2t-4}} \right)$$

$$\frac{1}{2} \left[ e^{2t} + e^{2(t-5)} - 2e^{2(t-2)} \right]$$

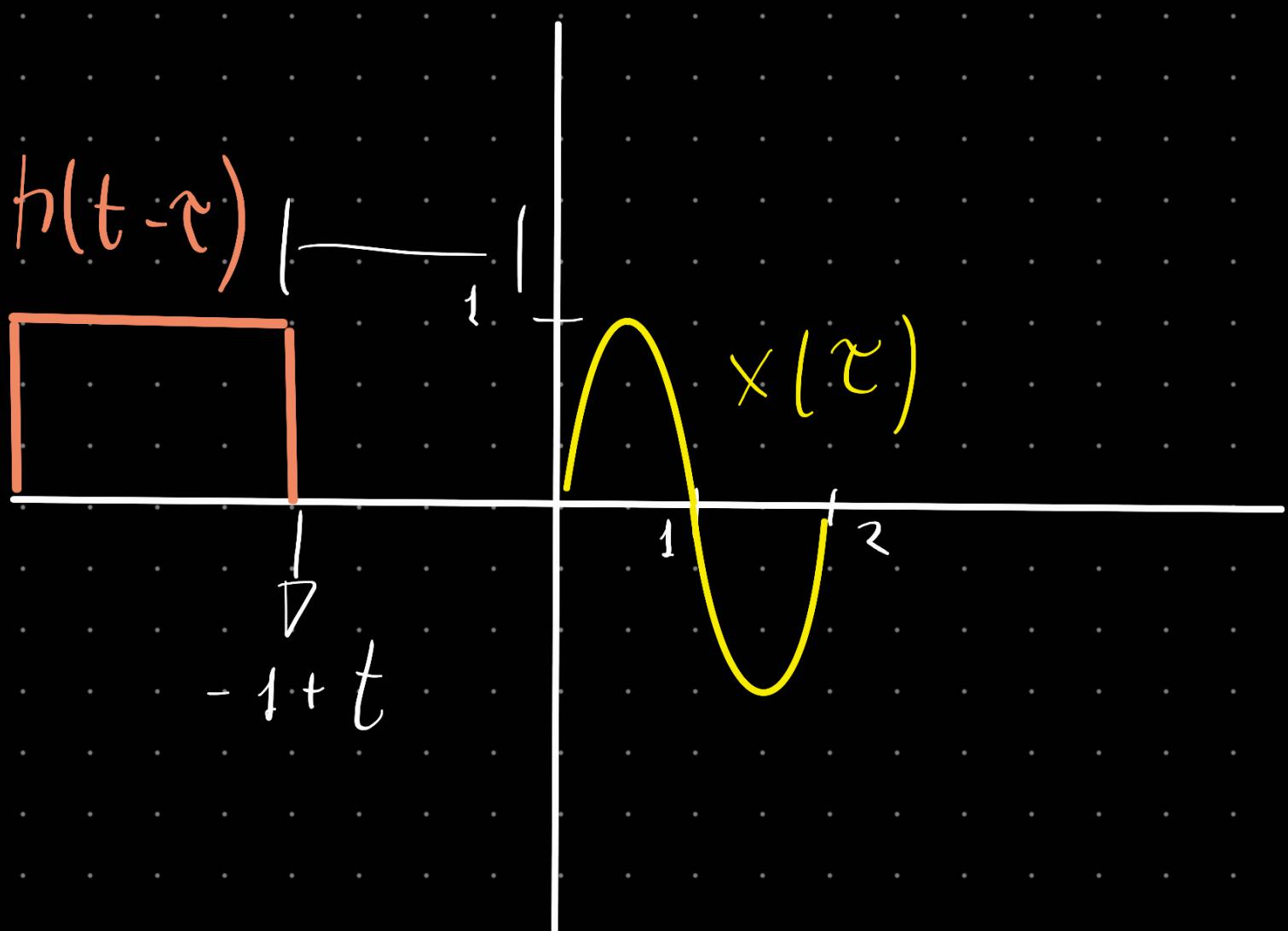
$$y(t) = \begin{cases} t < 1, & \frac{1}{2} \left[ e^{2t} + e^{2(t-5)} - 2e^{2(t-2)} \right] \\ 1 \leq t \leq 3, & \frac{1}{2} \left[ e^{2t} - 2e^{2(t-2)} + e^{2(t-5)} \right] \\ 3 \leq t \leq 6, & \frac{1}{2} \left[ e^{2(t-5)} - e^2 \right] \\ 6 \leq t, & 0 \end{cases}$$



$$c) \quad x(t) = \sin \pi t [u(t) - u(t-2)]$$

$$h(t) = 2[u(t-1) - u(t-3)]$$

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

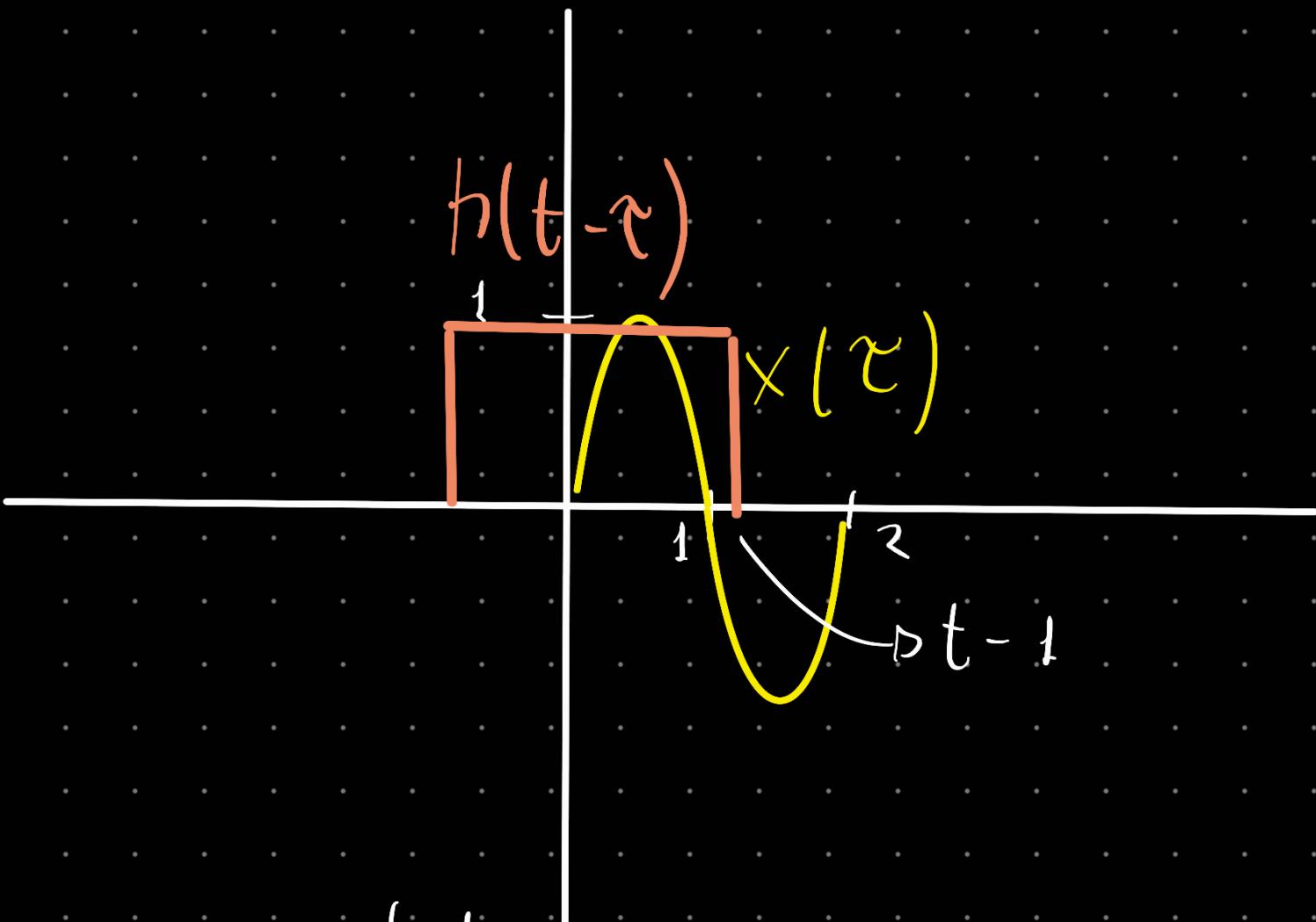


Para  $-1 + t < 0 \rightarrow t < 1$

$$y(t) = 0$$

Para  $0 < t-1 < 2$

$1 < t < 2$

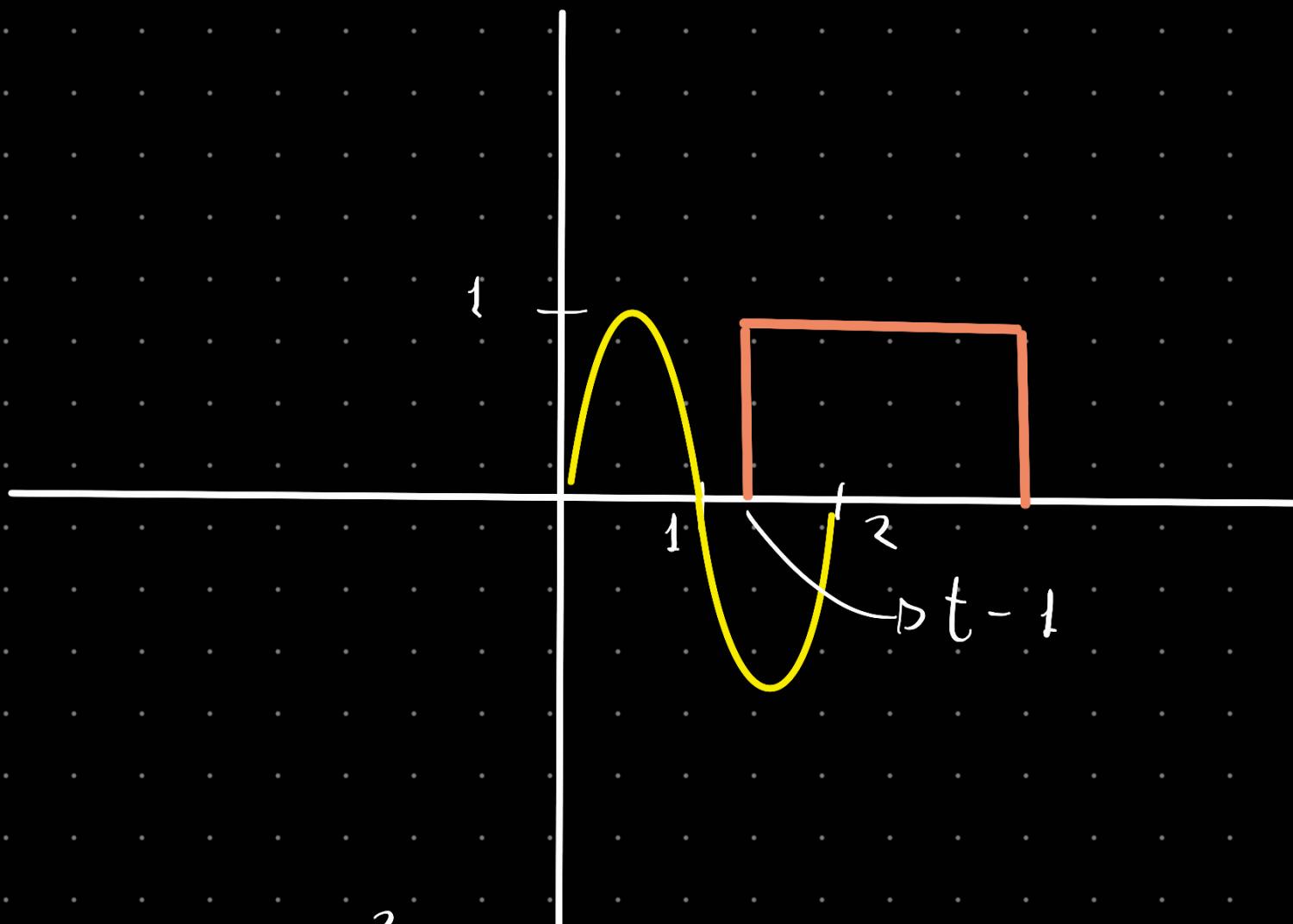


$$y(t) = \int_0^{t-1} \sin(\pi x) dx$$

$$= \frac{2}{\pi} [\cos(\pi t) + 1]$$

Para  $2 < t-1 < 4$

$3 < t < 5$



$$y(t) = \int_{t-1}^2 \sin(\pi z) dz$$

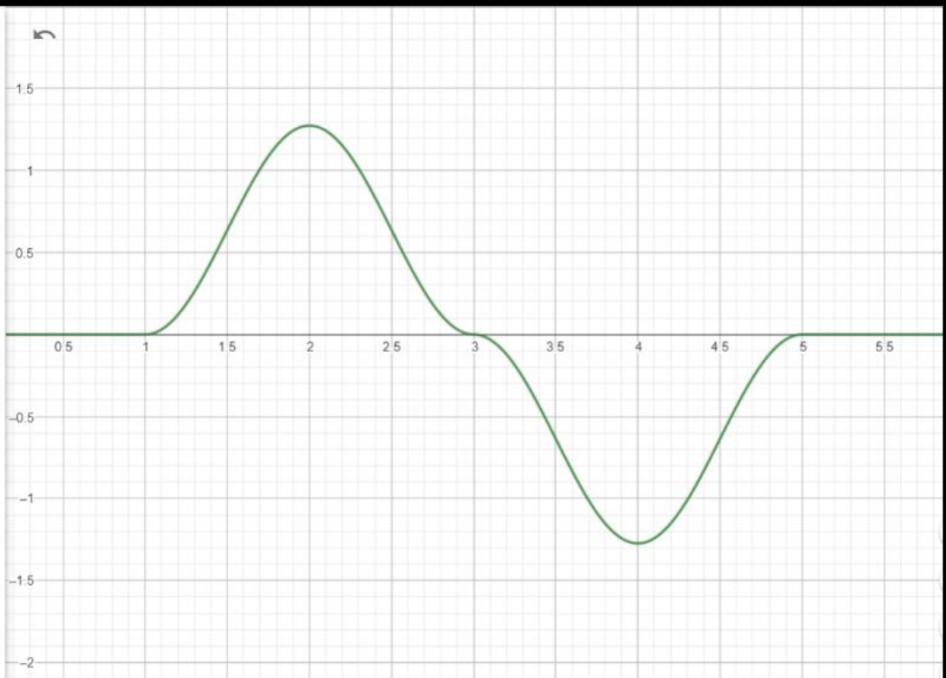
$$y(t) = -2 \underbrace{[\omega s(\pi t) + t]}_{\pi}$$

Para  $5 < t$

$$y(t) = 0$$

$$y(t) = \begin{cases} \frac{2}{\pi} [\omega s(\pi t) + 1], & 1 < t < 3 \\ -\frac{2}{\pi} [\omega s(\pi t) + t], & 3 < t < 5 \\ 0 & \text{O.C.} \end{cases}$$

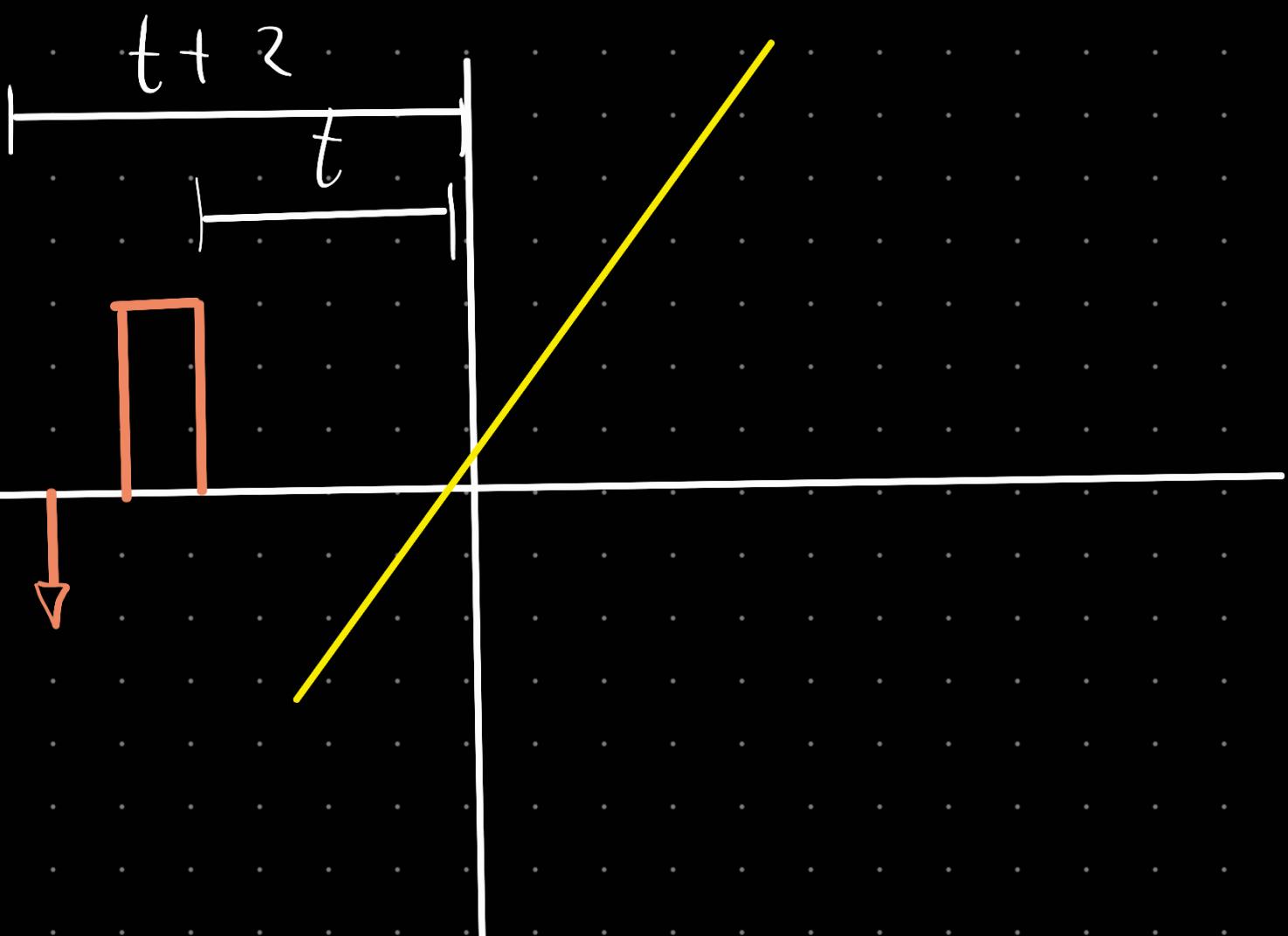
|   |   |
|---|---|
|   | $f_{12}(x) = \text{Si}(x \leq 0, 0, x e^{-ax})$   |
| ○ | $= \begin{cases} 0 & : x \leq 0 \\ x e^{-1.1x} & : \text{en caso contrario} \end{cases}$  |
| ● | $f_3(x) = \begin{cases} \frac{2}{\pi} (\cos(\pi x) + 1) & : 1 < x < 3 \\ -\frac{2}{\pi} (\cos(\pi x) + 1) & : 3 < x < 5 \\ 0 & : \text{en caso contrario} \end{cases}$  |
| ○ | $f_4(x) = \begin{cases} -x^2 + x + \frac{1}{4} & : -0.5 < x < 0.5 \\ x^2 - 3x + \frac{7}{3} & : 0.5 < x < 1.5 \end{cases}$  |
| ○ | $f_{41}(x) = f_4(x+2)$  |
| ○ | $= \begin{cases} -(x+2)^2 + x+2 + \frac{1}{4} & : -\frac{1}{2} < x+2 \wedge x+2 < \frac{1}{2} \\ (x+2)^2 - 3(x+2) + \frac{7}{3} & : \left(-\frac{1}{2} \geq x+2 \vee x+2 \geq \frac{1}{2}\right) \end{cases}$ |
| ○ | $f_{42}(x) = f_4(x-2)$  |
| ○ | $= \begin{cases} -(x-2)^2 + x-2 + \frac{1}{4} & : -\frac{1}{2} < x-2 \wedge x-2 < \frac{1}{2} \\ (x-2)^2 - 3(x-2) + \frac{7}{3} & : \left(-\frac{1}{2} \geq x-2 \vee x-2 \geq \frac{1}{2}\right) \end{cases}$ |



$$d) \quad x(t) = at + b$$

$$h(t) = \frac{4}{3} [u(t) - u(t-1)] - \frac{1}{3} \delta(t-2)$$

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



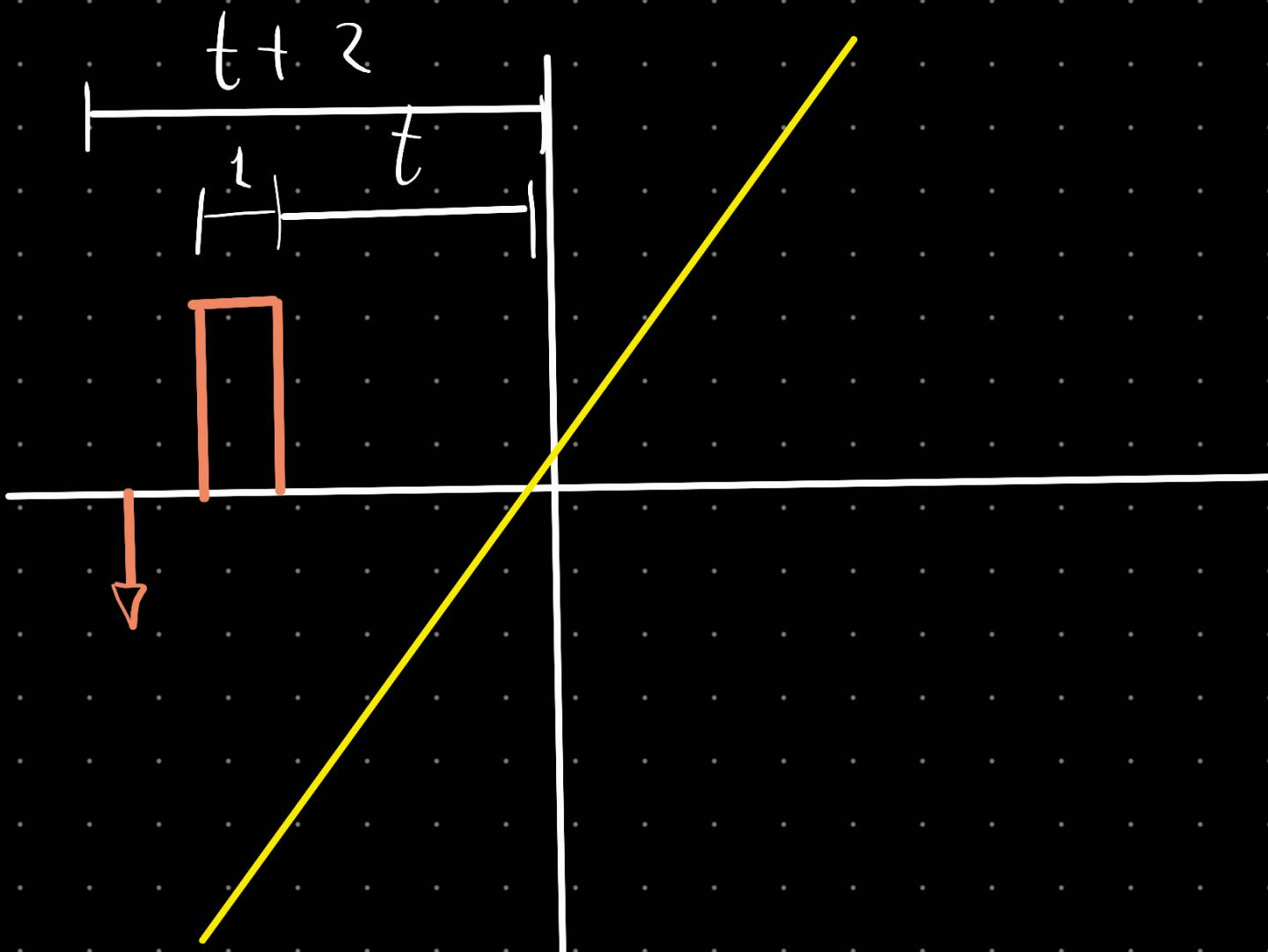
Analizare des prelungirii  $\delta(t-\tau-2)$

$$y_1(t) = -\frac{1}{3} \int_{-\infty}^{\infty} x(\tau) \delta(t-\tau-2) d\tau$$

$\Rightarrow \tau = t-2$

$$y_1(t) = -\frac{1}{3} [a(t-2) + b]$$

Analizando el umbral de función rect.



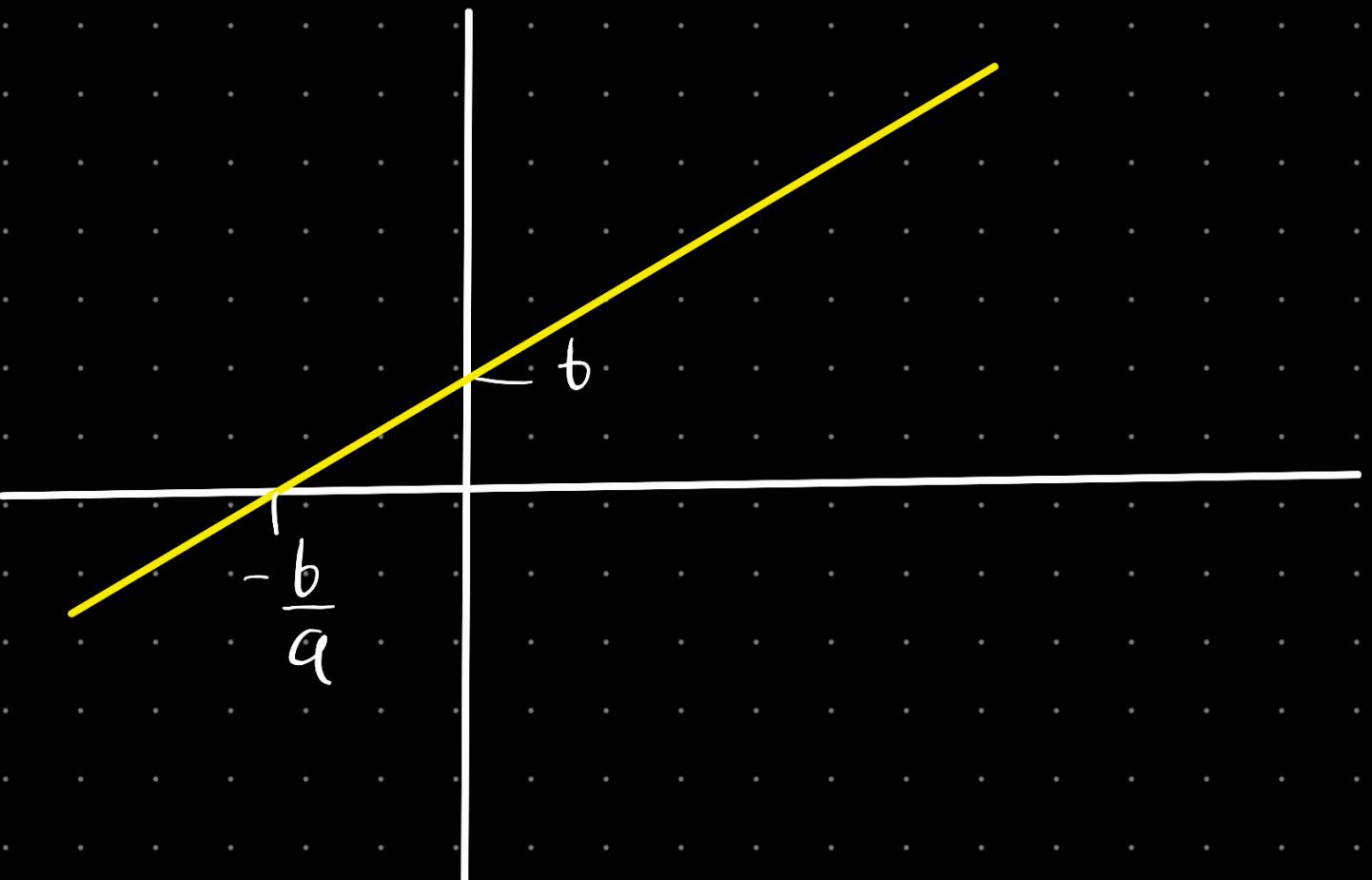
$$y_2(t) = \int_{t-1}^t \frac{4}{3} (ax + b) dx$$

$$= \frac{4}{3} \left\{ \frac{a}{2} \left[ t^2 - (t-1)^2 \right] + b [t - (t-1)] \right\}$$

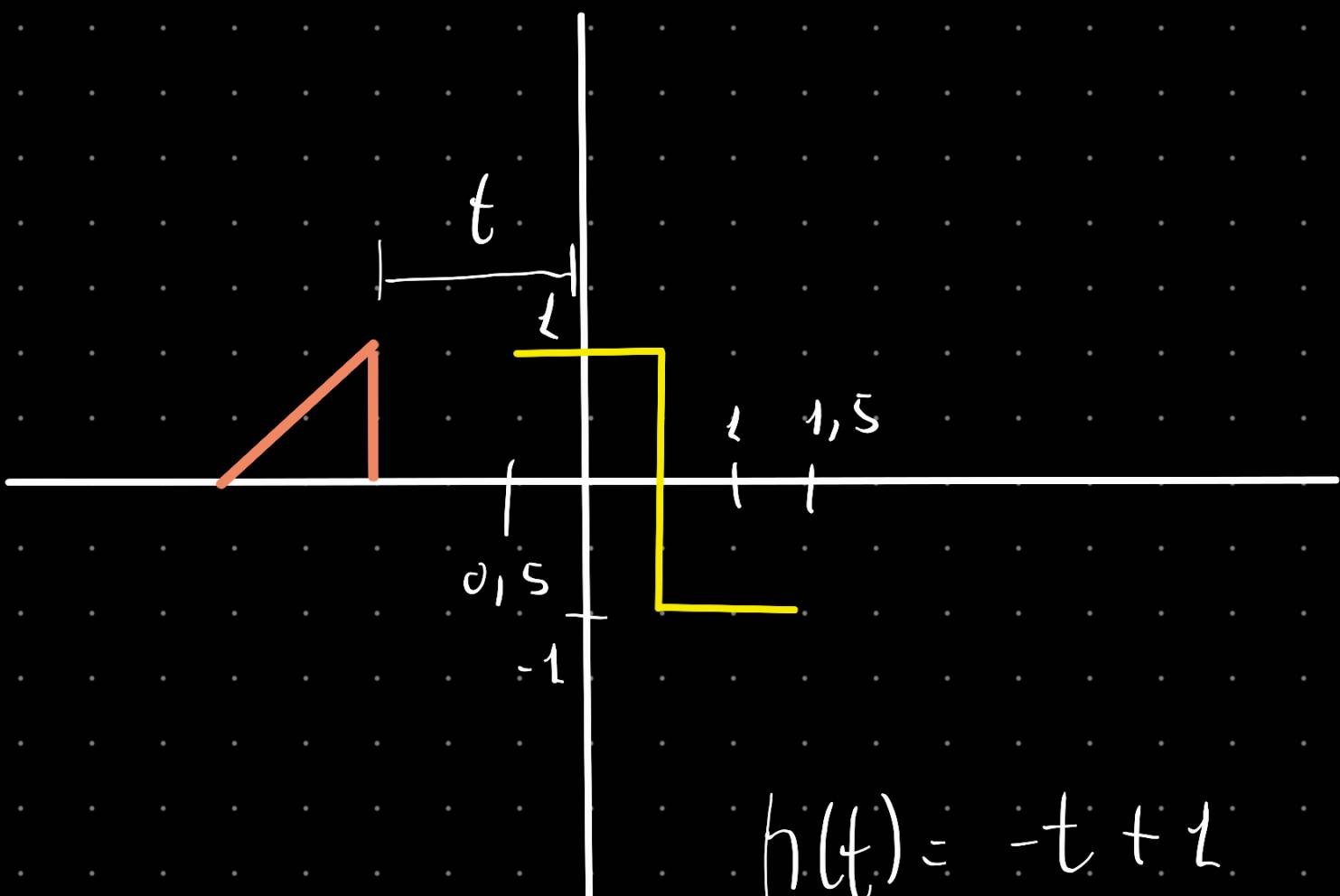
$$y(t) = y_1(t) + y_2(t)$$

$$y(t) = \frac{4}{3} \left[ \frac{a}{2} (2t-1) + b \right] - \frac{1}{3} [a(t-2) + b]$$

$$y(t) = at + b = x(t)$$



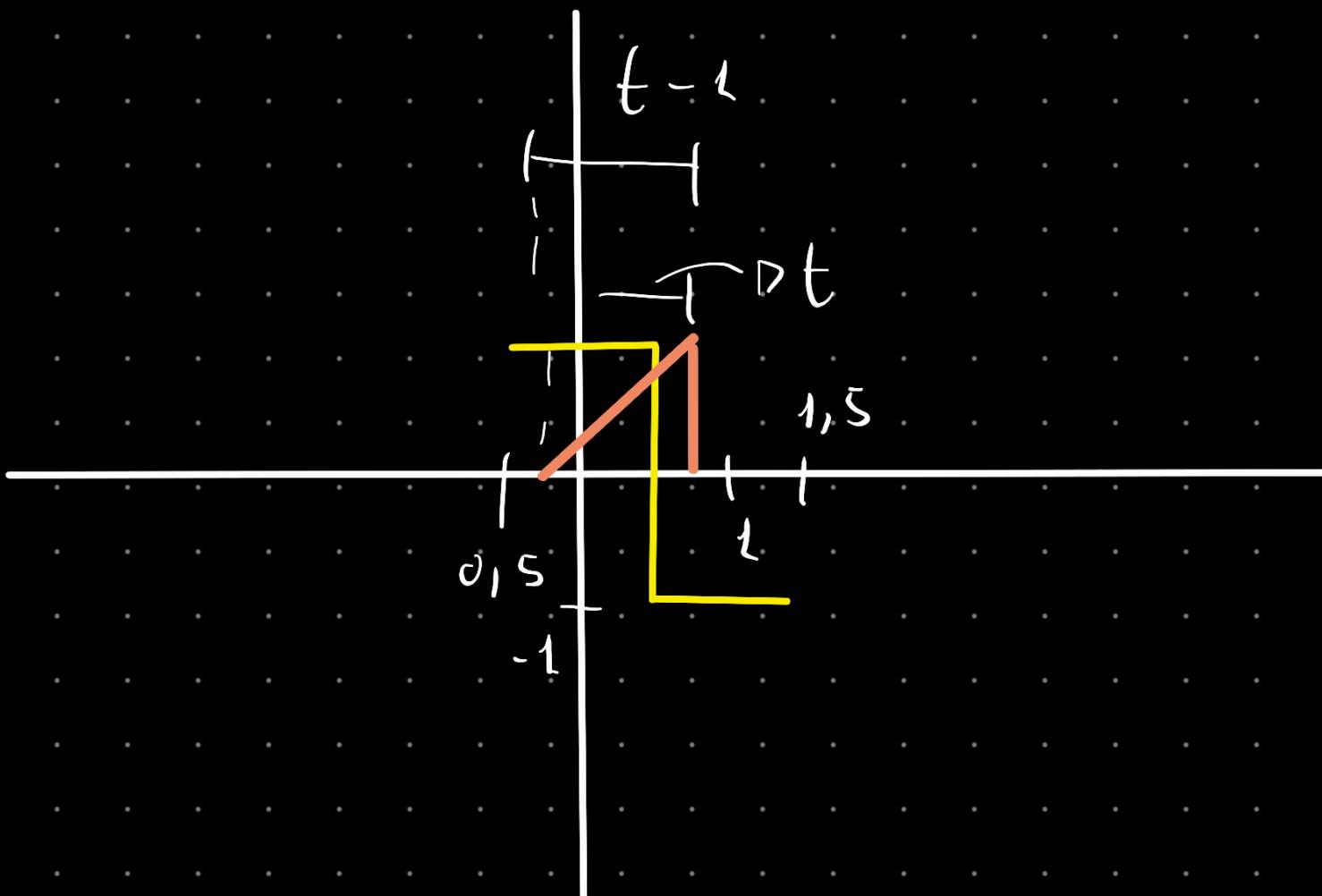
e) Para funciones periódicas  
basta analizar un período  
y definir  $y(t)$  para períodos



$$h(t) = -t + L$$

$$\begin{aligned}h(t-\tau) &= -(t-\tau) + L \\&= -t + \tau + L\end{aligned}$$

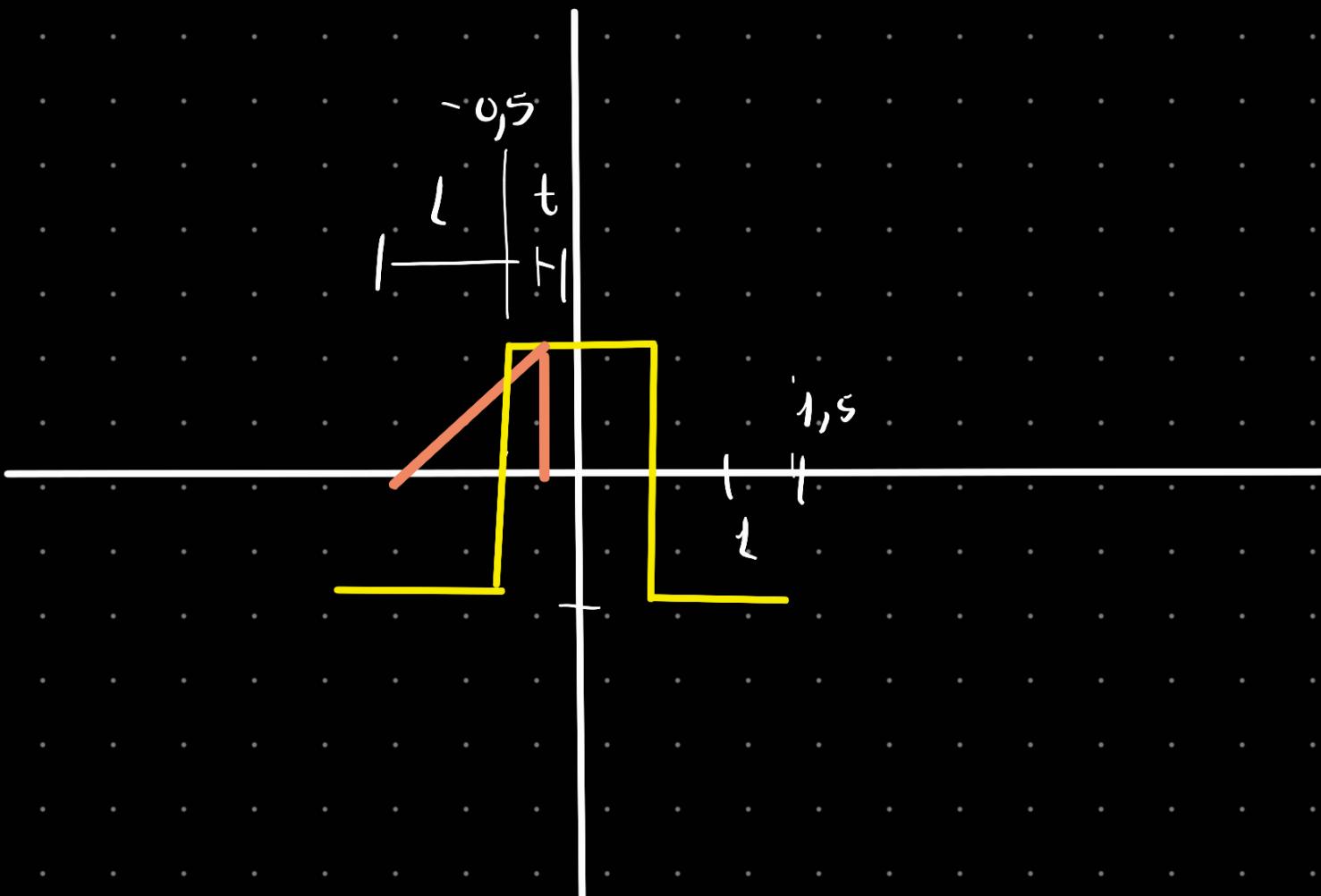
Para  $\frac{1}{2} < t < 1,5$



$$\int_{t-1}^{0,5} (-t + \tau + 1) d\tau - \int_{0,5}^t (-t + \tau + 1) d\tau$$

$$= t^2 - 3t + \frac{7}{4}$$

$$-\frac{1}{2} < t < \frac{1}{2}$$

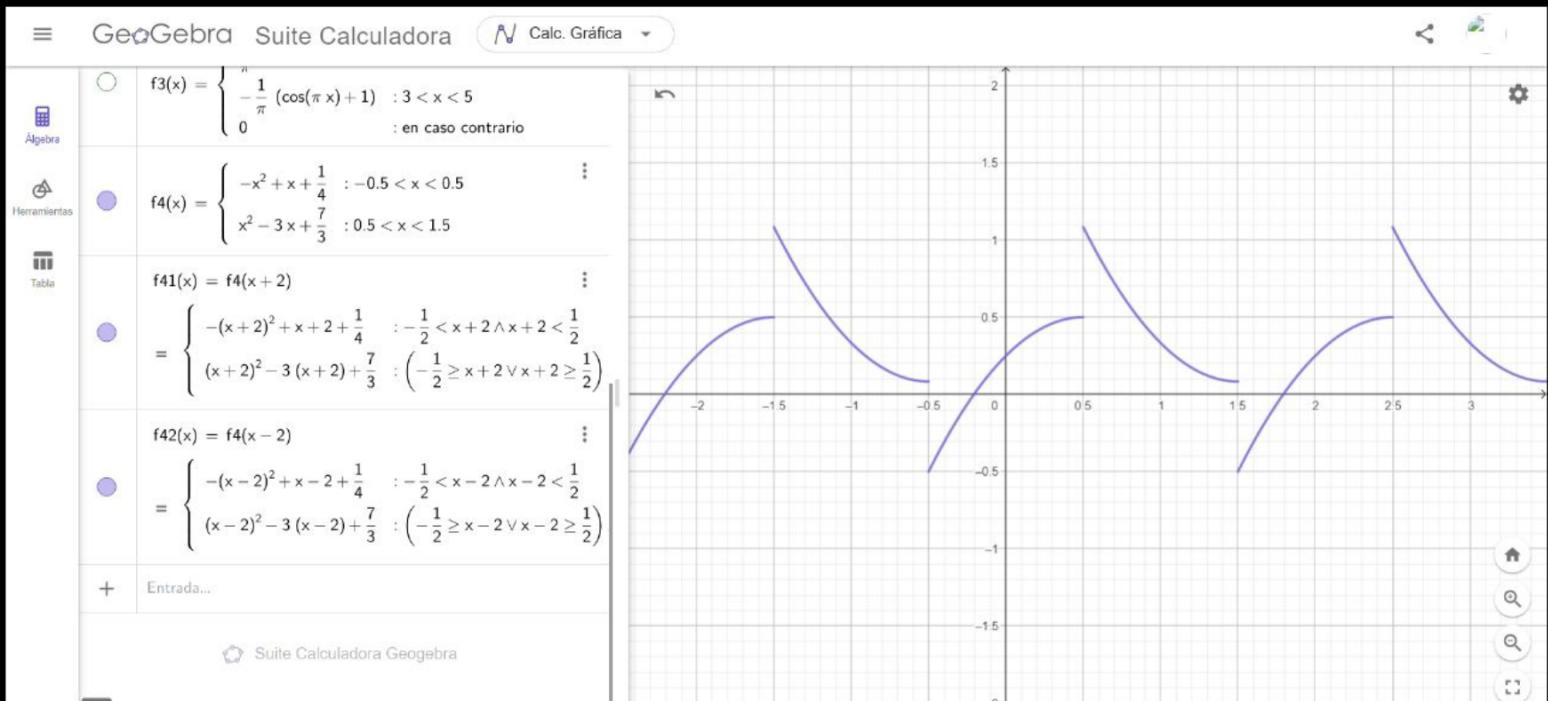


$$\int_{-0,5}^t (-t + \tau + 1) d\tau - \int_{t-1}^{0,5} (-t + \tau + 1) d\tau =$$

$$-t^2 + t + \frac{1}{4}$$

$$T = 2$$

$$\forall(n): n \in \mathbb{Z} / y(t) = \begin{cases} -t^2 + t + \frac{1}{4} & , -\frac{1}{2} + 2n < t < \frac{1}{2} + 2n \\ t^2 - 3t + \frac{7}{4} & , \frac{1}{2} + 2n < t < \frac{3}{2} + 2n \end{cases}$$



$$2.33) \quad \frac{dy(t)}{dt} + 2y(t) = x(t)$$

$$y(0) = 0$$

$$M(t) = e^{\int 2 dt} = e^{2t}$$

$$ye^{2t} + 2e^{2t}y = e^{2t}x$$

$$\frac{d(ye^{2t})}{dt} = e^{2t}x$$

$$\int d(ye^{2t}) = \int e^{2t}x dt$$

$$y(t) = \frac{1}{e^{2t}} \left( \int e^{2t}x(t) dt + c \right)$$

$$c = - \int e^{2t}x(t) dt (0)$$

$$y(t) = \frac{1}{e^{2t}} \left[ \int e^{2t}x(t) dt - \int e^{2t}x(t) dt (0) \right]$$

$$i) \quad x(t) = e^{3t} u(t)$$

$$\int e^{2t} \cdot e^{3t} u(t) dt = \frac{1}{5} e^{5t} \quad t \geq 0$$

$$c = -\frac{1}{5} e^{5 \cdot 0} u(0) = -\frac{1}{5} \quad t \geq 0$$

$$y(t) = \begin{cases} \frac{1}{5 e^{2t}} \left( e^{3t} - 1 \right) & t \geq 0 \\ 0 & t < 0 \end{cases}$$

$$y(t) = \frac{u(t)}{5 e^{2t}} \left( e^{3t} - 1 \right)$$

$$\text{ii) } x(t) = e^{2t} u(t)$$

$$\int e^{2t} \cdot e^{2t} u(t) dt = \frac{1}{4} e^{4t} \quad t \geq 0$$

$$c = -\frac{1}{4} e^{4 \cdot 0} u(0) = -\frac{1}{4} \quad t \geq 0$$

$$y(t) = \begin{cases} \frac{1}{4} e^{2t} \left( e^{4t} - 1 \right) & t \geq 0 \\ 0 & \text{O.C.} \end{cases}$$

$$y(t) = \frac{u(t)}{4 e^{2t}} \left( e^{4t} - 1 \right)$$

iii)

$$Y' + 2Y = X \quad \text{en sistema LTI}$$

Ya que  $x_3(t) = a x_1(t) + b x_2(t)$ , o sea,  
CoLo de  $x_1$  y  $x_2$ , por  
propiedad de los sistemas  
lineales subimos que  $y_3 = a y_1 + b y_2$

$$y_3(t) = \frac{1}{e^{2t}} \left[ \int e^{-t} (ax_1 + bx_2) dt - \int e^{-t} (ax_1 + bx_2) dt(0) \right]$$

$$y_3(t) = \frac{a}{e^{2t}} \left[ \int e^{-t} x_1(t) dt - \int e^{-t} x_1(t) dt(0) \right] + \frac{b}{e^{2t}} \left[ \int e^{-t} x_2(t) dt - \int e^{-t} x_2(t) dt(0) \right]$$

$$y_3(t) = a y_1(t) + b y_2(t)$$

o o

$$y_3(t) = u(t) \left[ \frac{a}{5e^{2t}} \left( e^{5t} - 1 \right) + \frac{b}{4e^{2t}} \left( e^{5t} - 1 \right) \right]$$

iv) A diferencia del caso anterior, las func  $x_1$  y  $x_2$  no comparten  $\mu(t)$ , pero de todos modos:

$$y(t) = \frac{1}{e^{zt}} \left[ \int e^{zt} x(t) dt - \int e^{zt} x(t) dt(0) \right]$$

Simplemente se distribuirá por las propiedades de linearidad de la integral, o sea

$$y_3(t) = \frac{1}{e^{zt}} \left[ \int e^{zt} (ax_1 + bx_2) dt - \int e^{zt} (ax_1 + bx_2) dt(0) \right]$$

$$y_3(t) = \frac{a}{e^{zt}} \left[ \int e^{zt} x_1(t) dt - \int e^{zt} x_1(t) dt(0) \right] + \frac{b}{e^{zt}} \left[ \int e^{zt} x_2(t) dt - \int e^{zt} x_2(t) dt(0) \right]$$

$$y_3(t) = a y_1(t) + b y_2(t)$$

2.45) a)

$$i) \quad x(t) \rightarrow \boxed{\text{Sistème LTI}} \rightarrow y(t)$$

-

$$x(t-h) \rightarrow \boxed{\text{Sistème LTI}} \rightarrow y(t-h)$$

=

$$x(t) - x(t-h) \rightarrow \boxed{\text{Sistème LTI}} \rightarrow y(t) - y(t-h)$$

... % h

=

$$\frac{x(t) - x(t-h)}{h} \rightarrow \boxed{\text{Sistème LTI}} \rightarrow \frac{y(t) - y(t-h)}{h}$$

...  $\lim_{h \rightarrow 0} ( )$

=

$$\lim_{h \rightarrow 0} \frac{x(t) - x(t-h)}{h} \rightarrow \boxed{\text{Sistème LTI}} \rightarrow \lim_{h \rightarrow 0} \frac{y(t) - y(t-h)}{h}$$

$x'(t)$

=

$y'(t)$

$$x'(t) \rightarrow \boxed{\text{Sistème LTI}} \rightarrow y'(t)$$

ii)

$$y(t) = x(t) * h(t) = h(t) * x(t)$$

$$\frac{dy(t)}{dt} = \frac{d}{dt} [h(t) * x(t)]$$

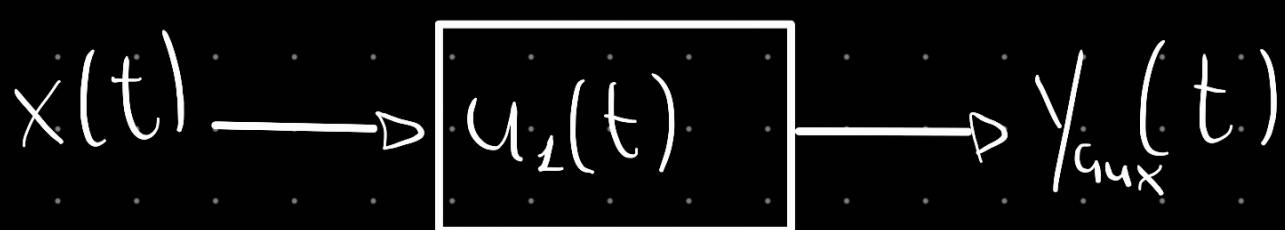
$$y'(t) = \frac{d}{dt} \left[ \int_{-\infty}^{\infty} h(\tau) x(t-\tau) d\tau \right] \xrightarrow{\text{constant para } t}$$

$$y'(t) = \int_{-\infty}^{\infty} h(\tau) \frac{d}{dt} [x(t-\tau)] d\tau$$

$$y'(t) = \int_{-\infty}^{\infty} h(\tau) x'(t-\tau) d\tau$$

$$y'(t) = h(t) * x'(t)$$

iii)



$$y_{\text{aux}}(t) = x(t) * u_1(t)$$



$$s(t) = y_{\text{aux}}(t) * h(t)$$

$$s(t) = x(t) * u_1(t) * h(t)$$

¶/  $y(t) = x(t) * h(t)$

$$s(t) = u_1(t) * y(t)$$

¶/  $w(t) * u_1(t) = w'(t)$

$$s(t) = y'(t)$$

b)

i)  $x(t) * h'(t)$

$$x(t) * u_1(t) * h(t)$$

$$x'(t) * h(t) = \dot{y}(t)$$

ii)

a)

$$\int_{-\infty}^t x(\tau) d\tau = \int_{-\infty}^{\infty} x(\tau) u(t-\tau) d\tau = x(t) * u(t)$$

$$x(t) * u(t) * h'(t) =$$

$$x(t) * u(t) * u_1(t) * h(t) =$$

$$\text{P/ } u(t) = u_{-1}(t)$$

$$x(t) * \delta(t) * h(t) =$$

$$x(t) * h(t) =$$

$$y(t)$$

①

③

b) Partiendo desde la la ec (3)  
de la parte a)

$$x(t) * u(t) * u_1(t) * h(t) =$$

$$\left[ x(t) * u_1(t) \right] * \left[ h(t) * u(t) \right]$$

Usando la ec (1) de la parte  
a)  $\wedge$   $u(t) * u_1(t) = u'(t)$

$$x'(t) * \int_{-\infty}^t h(x) dx$$

Y suponemos que la ec (3) concluye  
siguiendo igual a  $y(t)$

•

• •

$$x'(t) * \int_{-\infty}^t h(x) dx = y(t)$$

$$c) \quad y(t) = x(t) * h(t) \dots f\{ \}$$

$$Y(s) = X(s) \cdot H(s)$$

$$h(t) = \mathcal{L}^{-1} \left\{ \frac{\mathcal{L}\{x(t)\}}{\mathcal{L}\{y(t)\}} \right\}$$

P/  $x(t) = e^{-st} u(t) \wedge y(t) = \sin \omega_0 t$

$$\mathcal{L}\{e^{-st} u(t)\} = \frac{e^{-st}}{s+5} = \frac{1}{s+5}$$

$$\mathcal{L}\{\sin \omega_0 t\} = \frac{\omega_0}{s^2 + \omega_0^2}$$

$$H(s) = \frac{\frac{1}{s+5}}{\frac{\omega_0}{s^2 + \omega_0^2}} = \underbrace{\frac{1}{\omega_0} \frac{s^2}{s+5} + \frac{\omega_0}{s+5}}$$

No conocí los

o - /

$$c) x(t) = e^{-5t} u(t) \rightarrow \text{no initial bump}$$

$$x'(t) = -5e^{-5t} u(t) + e^{-5t} \delta(t)$$

$$x'(t) = -5e^{-5t} u(t) + \delta(t)$$

$$\text{Si } x(t) \xrightarrow{h(t)} y(t)$$

$$\text{Entonces } x'(t) \xrightarrow{h(t)} y'(t)$$

$$-5e^{-5t} u(t) + \delta(t) \rightarrow \underbrace{-5e^{-5t} u(t) * h(t)}_{y(t)} + \delta(t) * h(t)$$

$$\text{II } // \rightarrow -5y(t) + h(t) = y'(t)$$

$$h(t) = y'(t) + 5y(t)$$

$$= \frac{d}{dt} [\sin \omega_0 t] + 5 \sin \omega_0 t$$

$$= \omega_0 \cos \omega_0 t + 5 \sin \omega_0 t$$

d)  
i)

$$s(t) = h(t) * u(t)$$

$$= \int_0^t h(\tau) d\tau$$

Particulars describe la la pc (3) del b)

$$y(t) = x(t) * \widehat{u(t)} * u_1(t) * \widehat{h(t)}$$

$$= \widehat{x(t)} * \widehat{u_1(t)} * s(t)$$

$$= x'(t) * s(t)$$

$$= \int_{-\infty}^{\infty} x'(\tau) s(t - \tau) d\tau$$

ii)

$$x(t) = x(t) * f(t) \quad u(t)$$

$$f(t) = u_0(t) = \underbrace{u_1(t)}_{-1} * \underbrace{u_1(t)}_1$$

$$x(t) = \widehat{x(t)} * u(t) * \widehat{u_1(t)}$$

$$= x'(t) * u(t)$$

$$= \int_{-\infty}^{\infty} x(\tau) u(t - \tau) d\tau$$

e) P/

$$s(t) = (e^{-3t} - 2e^{-2t} + 1) u(t)$$

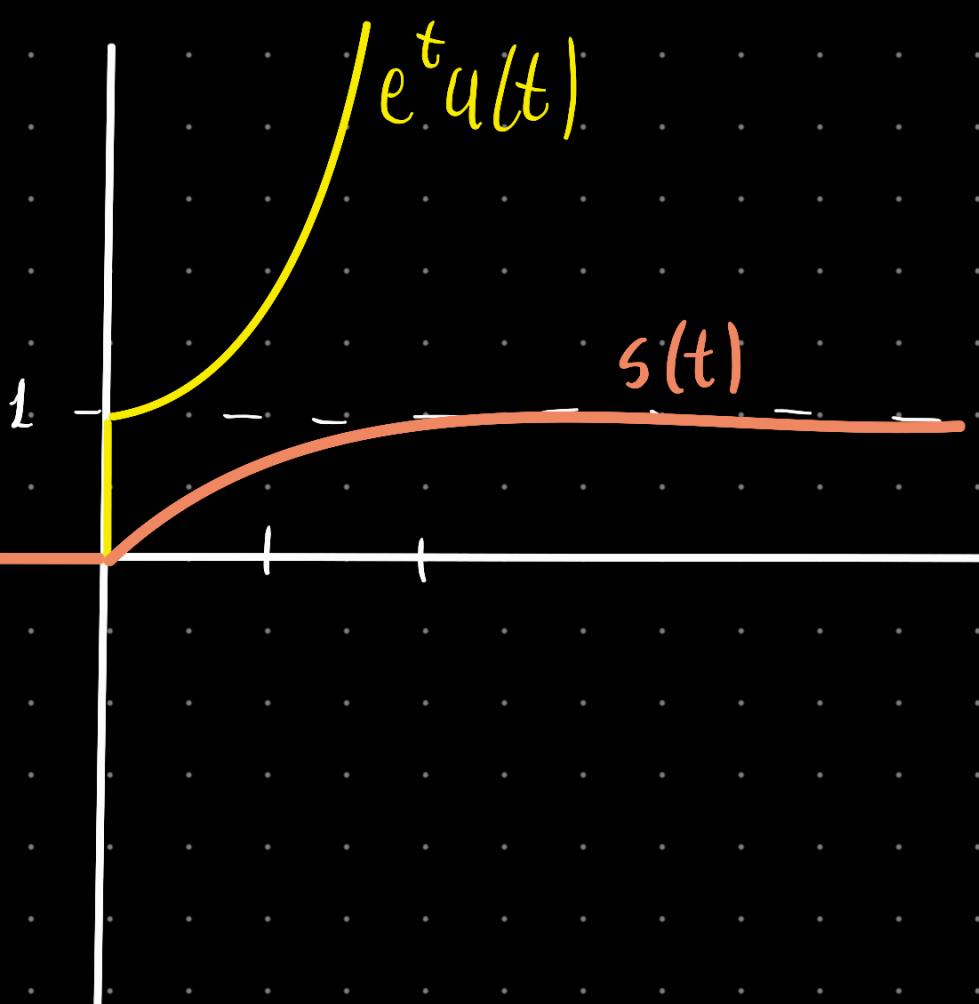
$$x(t) = e^t \overset{\wedge}{u}(t)$$

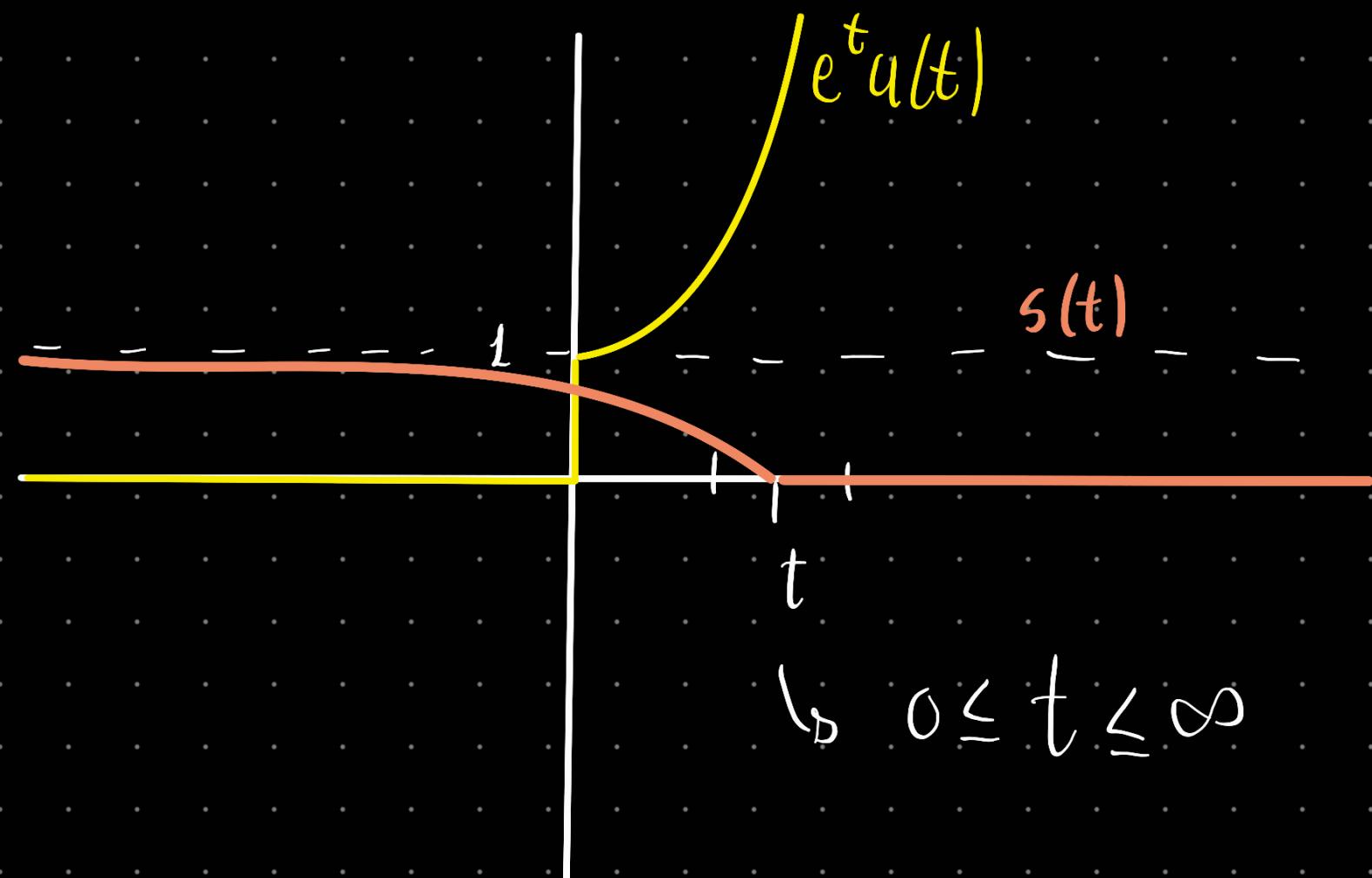
$$x'(t) = e^t u(t) + \delta(t)$$

$$y(t) = x'(t) * s(t)$$

$$y(t) = [e^t u(t) + \delta(t)] * (e^{-3t} - 2e^{-2t} + 1) u(t)$$

$$y(t) = e^t u(t) * (e^{-3t} - 2e^{-2t} + 1) u(t) + s(t)$$





$$y(t) = \int_0^\infty e^\tau u(\tau) [e^{-3(t-\tau)} - 2e^{-2(t-\tau)} + 1] u(t-\tau) d\tau$$

$$\downarrow \qquad \qquad \qquad \downarrow$$

$$\tau \geq 0 \quad \wedge \quad t - \tau \geq 0$$

$$\tau \geq 0 \quad \wedge \quad t \geq \tau$$

$$0 \leq \tau \leq t$$

$$y(t) = \int_0^t e^\tau [e^{-3(t-\tau)} - 2e^{-2(t-\tau)} + 1] d\tau + s(t)$$

$$y(t) = \left[ \frac{7}{12} e^t - \frac{4}{3} e^{-2t} + \frac{3}{4} e^{-3t} \right] u(t)$$

f) No ptos func discontinuas p/ r/  
p | tpmax