$$1 \quad \partial_t \eta = -d\,\eta(t,s)$$

$$0 = \int_{s^*}^{+\infty} F\,\eta\,ds$$

$\boxed{F=0}$. $\boxed{d \equiv \text{cste} = \frac{1}{3}}$

car t_{max}

$d = \frac{1}{t_{max}}$

$$1 = \int_{s^*}^{+\infty} A\,\eta(t,s)\,ds.$$

$\boxed{A = e^{-s}}$

$$\cancel{1 = \int_{s^*}^{+\infty} 2e^{-s}\,ds}$$

$$\cancel{\Leftrightarrow \frac{1}{2} = +e^{-s^*}.}$$

$$\cancel{\boxed{s^* = \log 2}.}$$

$\cancel{>0.}$

~~trop cool~~

$$\eta(t,s) = e^{-dt}\,\alpha(s).$$

$$\partial_t \eta = -d\,e^{-dt}\,\alpha(s)$$

$$= -d\,\eta.$$

$\alpha(s) = 2$

$$\boxed{\eta(t,s) = 2e^{-dt}}$$

$$\eta(0,s) = 2 = \alpha(s)$$

$\boxed{d = \frac{1}{3}}$

$$1 = \int_{s^*}^{+\infty} 2\,e^{-dt}\,e^{-s}\,ds$$

$$\Leftrightarrow \frac{1}{2}e^{dt} = -e^{-s}\Big|_{s^*}^{+\infty}$$

$$= +e^{-s^*}$$

$$-s = -\log 2 + dt$$

$$\boxed{s = \log(2) - dt}$$

$$\eta(t,s) = (1+s)\, e^{-dt}.$$

$s^* = 0$, non utilisé. ($i.e.$, $A \equiv 0$).

$$F = e^{-s}.$$

$$v_0 = 2.$$

On arrive au système pour trouver v: car je suppose $\underline{v \perp\!\!\!\perp t}$.

$$(1)\quad \begin{cases} (1+s)\,\overbrace{v'}^{=\partial_s v} + v = 0 \\ v_0 = 2. \end{cases}$$

$$(1) \iff v(s) = \frac{2}{1+s}.$$

$\underline{d = 4}$.