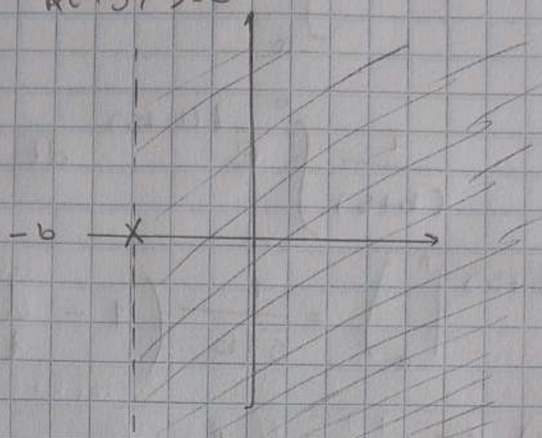
$$X(s) = \frac{1}{s+b} \qquad ROC \quad s: \quad \sigma + b > 0$$

$$s = \sigma + j\omega = Re\{s\} + j\,Im\{s\}$$

$$Re\{s\} > -b$$



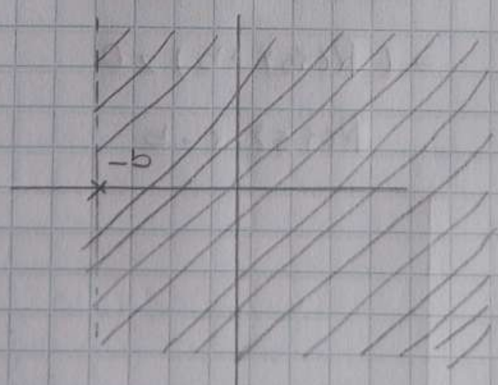
① ¿Qué pasa si la parte real es mayor a -b

$Re\{s\} = -b$?

② $\mathcal{L}\{-e^{-bt}(u(-t))\} = ?$ ROC ?

① Esto lo que permite es que nuestra $\mathcal{L}\{\cdot\}$ exista y por lo tanto este definida

$$Re\{s\} > -b$$



integral converge.

∞

1.1 Qué pasa si $Re\{s\} = -b$; lo que pasa es que la $\mathcal{L}\{\cdot\}$ no existe pues la "integral diverge".

$\mathcal{L}\{-e^{-bt}u(-t)\}$

$$-\int_{-\infty}^{0} e^{-bt}\cdot e^{-st}\,dt = -\int_{-\infty}^{0} e^{-t(b+s)}\,dt$$

$u = -t(b+s)$

$du = -(b+s)\,dt$

$\frac{du}{dt} = -(b+b)$

$$\frac{1}{(b+s)}\int_{-\infty}^{0} e^{-t(b+s)}\,d$$

$$= \frac{1}{b+s}\left(e^{-t(b+s)}\Big|_{-\infty}^{0}\right) = \frac{1}{s+b}\left(1 - \lim_{t\to-\infty} e^{-t(b+s)}\right)$$

$n = -(b+s) \leftarrow$

$$\frac{1}{s+b}\left(1 - \lim_{t\to\infty} e^{tn}\right)$$

Si $n > 0$ entonces

$$\frac{1}{s+b}$$

Sino
$n < 0$ no tiene sentido

asumiendo $n > 0$ tenemos:

$$-(Re\{s\}+b) > 0$$

$$Re\{s\} < -b$$