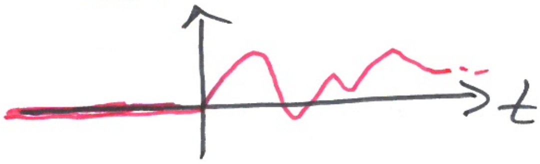
Möjliga konvergensområden

(x(t) med oändlig tidsutbredning):

- Högersidig signal

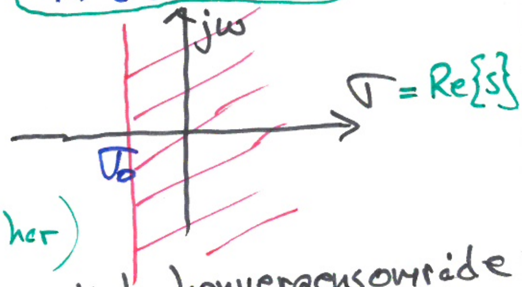
  $x(t) = 0$ för $t < 0$

  $\Rightarrow x(t) = f(t) \cdot u(t)$



$$\Rightarrow X_{II}(s) = X_I(s) = \int_{0-}^{\infty} \dots$$

$$\boxed{Re\{s\} = \sigma > \sigma_0}$$



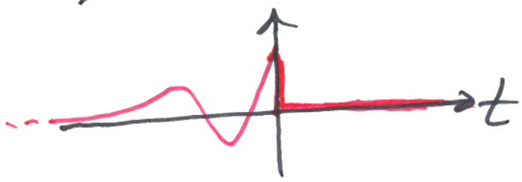
(X(s) här)

Högersidigt konvergensområde

- Vänstersidig signal

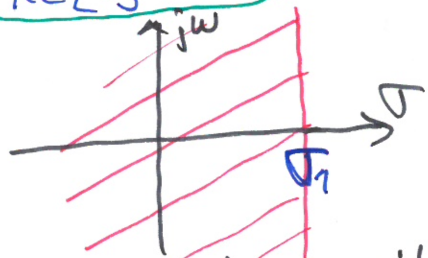
  $x(t) = 0$ för $t \geq 0$

  $\Rightarrow x(t) = f(t) \cdot u_0(-t)$



$$\Rightarrow X_{II}(s) = \int_{-\infty}^{0-} \dots$$

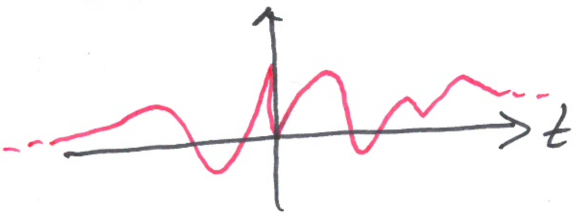
$$\boxed{Re\{s\} < \sigma_1}$$



Vänstersidigt konv.område

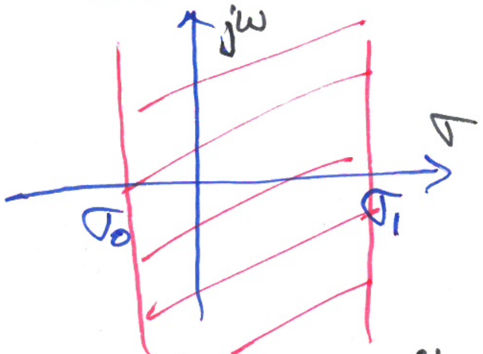
- Dubbelsidig signal

  $x(t) \neq 0$ för $t < 0$ & $t \geq 0$

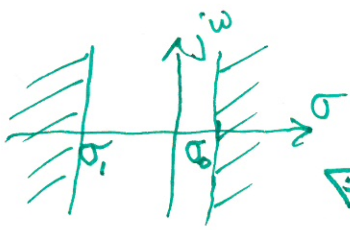


$$\Rightarrow X_{II}(s) = \int_{-\infty}^{\infty} \dots = \underbrace{\int_{-\infty}^{0-} \dots}_{Re\{s\} < \sigma_1} + \underbrace{\int_{0-}^{\infty} \dots}_{Re\{s\} > \sigma_0}$$

$$\Rightarrow \boxed{\sigma_0 < Re\{s\} < \sigma_1}$$



Dubbelsidigt konv.område



OBS: Om $\sigma_0 > \sigma_1 \Rightarrow X(s) \nexists$