

Exempel 9.2

$$x(t) = e^{-at}$$

$$X(j\omega) = \int_0^{\infty} e^{-at-j\omega t} dt$$

$$= -\frac{1}{a+j\omega} \left(e^{-at-j\omega t} \right) \Big|_0^{\infty}$$

$$\frac{1}{a+j\omega}$$

$$X(s) = \frac{1}{s+a} \rightarrow \operatorname{Re}\{s\} + a > 0$$
$$\operatorname{Re}\{s\} > -a$$

9.2.

$$x(t) = -e^{-at} u(-t)$$

$$X(s) = - \int_{-\infty}^0 e^{-(a+s)t} dt$$

$$= \int_0^{\infty} e^{-(a+s)t} dt$$

$$X(s) = \frac{1}{s+a} \quad \text{ROC} := \mathbb{R}\{s\} < -a$$