$$\frac{dx(t)}{dt} \rightleftharpoons j2\pi f X(f)$$

$$\int x(t)\,dt \rightleftharpoons \frac{X(f)}{j2\pi f}$$

TEOREMA PRODOTTO

$$x(t)\,y(t) \rightleftharpoons X(f) \otimes Y(f)$$

dimo

$$\int_{-\infty}^{\infty} x(t)\,y(t)\,e^{-j2\pi f t}\,dt$$

$$= \int_{-\infty}^{\infty} x(t) \underbrace{\left(\int_{-\infty}^{\infty} Y(\nu)\, e^{j2\pi \nu t}\,d\nu \right)}_{y(t)} \cdot e^{-j2\pi f t}\,dt$$