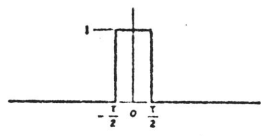
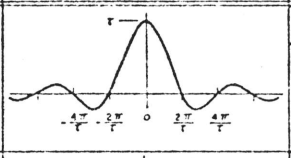
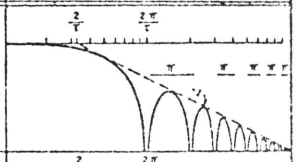
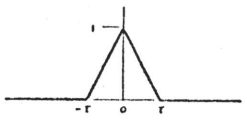
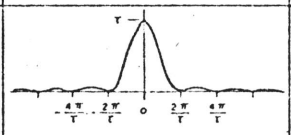
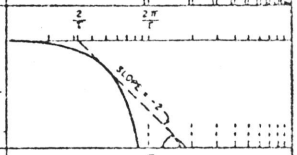
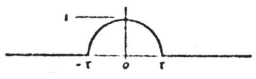
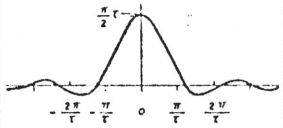
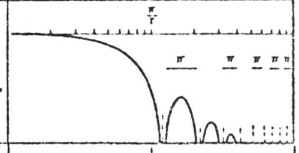
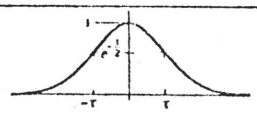
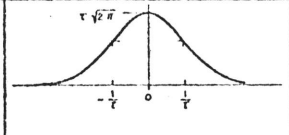
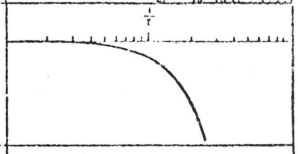
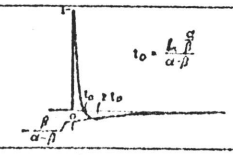
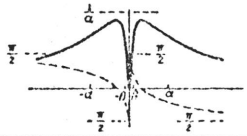
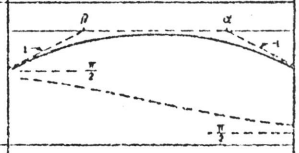
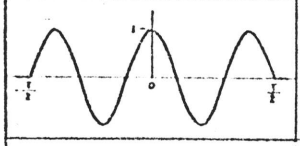
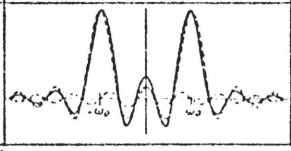
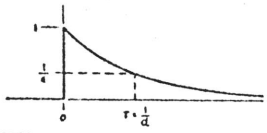
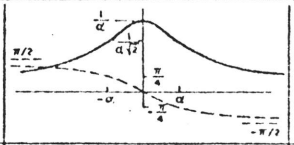
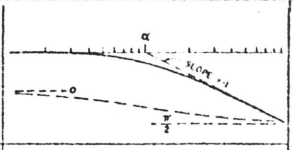
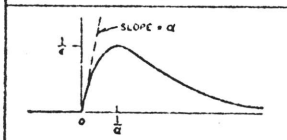
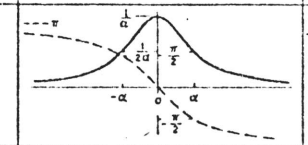
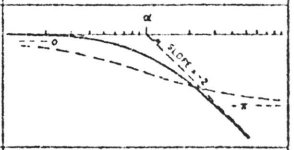
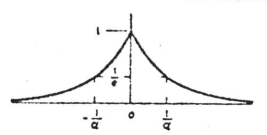
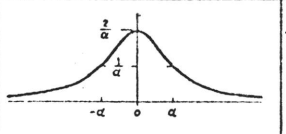
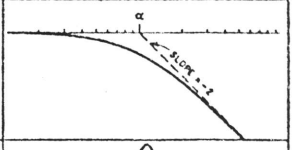
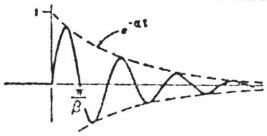
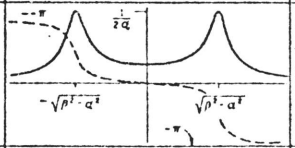
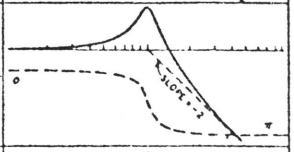
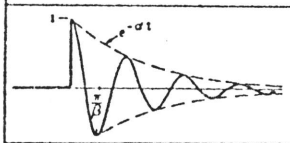
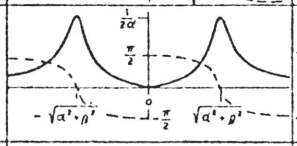
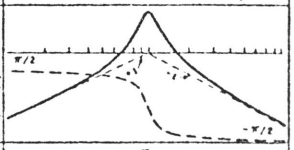
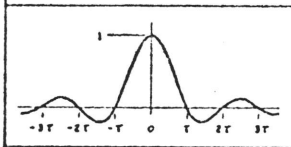
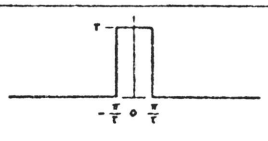
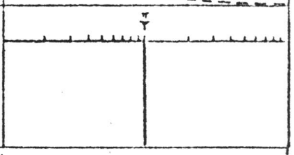
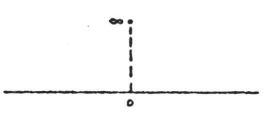
Weitere Beispiele für Fourier-Integraltransformationen

$F(\omega) \equiv 2\pi \cdot c(\omega)$, $p \equiv i\omega$.

TIME FUNCTIONS		FREQUENCY FUNCTIONS	(LINEAR SCALES)	(LOG AMPL. – LOG FREQ.)
	$f(t)=\begin{cases}1, \lvert t\rvert<\frac{\tau}{2}\\ 0, \lvert t\rvert>\frac{\tau}{2}\end{cases}$	$F(\omega)=\tau\,\frac{\sin(\frac{\omega\tau}{2})}{(\frac{\omega\tau}{2})}$		
	$f(t)=\begin{cases}1-\frac{\lvert t\rvert}{\tau}, \lvert t\rvert<\tau\\ 0, \lvert t\rvert>\tau\end{cases}$	$F(\omega)=\tau\,\frac{\sin^2(\frac{\omega\tau}{2})}{(\frac{\omega\tau}{2})^2}$		
	$f(t)=\begin{cases}\sqrt{1-(\frac{t}{\tau})^2}, \lvert t\rvert<\tau\\ 0, \lvert t\rvert>\tau\end{cases}$	$F(\omega)=\frac{\pi}{2}\,\tau\,\frac{2J_1(\omega\tau)}{(\omega\tau)}$		
	$f(t)=e^{-\frac{1}{2}(\frac{t}{\tau})^2}$	$F(\omega)=\tau\sqrt{2\pi}\,e^{-\frac{1}{2}(\tau\omega)^2}$		
	$f(t)=\begin{cases}0, \lvert t\rvert<0\\ \frac{\alpha e^{-\alpha t}-\beta e^{-\beta t}}{\alpha-\beta}, \lvert t\rvert>0\end{cases}$	$F(p)=\frac{p}{(p+\alpha)(p+\beta)}$		
	$f(t)=\begin{cases}\cos\omega_0 t, \lvert t\rvert<\frac{\tau}{2}\\ 0, \lvert t\rvert>\frac{\tau}{2}\end{cases}$	$F(\omega)=\frac{1}{2}\left[\frac{\sin(\frac{\omega-\omega_0}{2})\tau}{(\frac{\omega-\omega_0}{2})\tau}+\frac{\sin(\frac{\omega+\omega_0}{2})\tau}{(\frac{\omega+\omega_0}{2})\tau}\right]$		
	$f(t)=\begin{cases}0, t<0\\ e^{-\alpha t}, t>0\end{cases}$	$F(p)=\frac{1}{p+\alpha}$ $F(\omega)=\frac{1}{\alpha+i\omega}$		
	$f(t)=\begin{cases}0, t<0\\ \alpha t e^{-\alpha t}, t>0\end{cases}$	$F(p)=\frac{\alpha}{(p+\alpha)^2}$ $F(\omega)=\frac{\alpha}{(\alpha+i\omega)^2}$		
	$f(t)=e^{-\alpha\lvert t\rvert}$	$F(p)=\frac{2\alpha}{\alpha^2-p^2}$ $F(\omega)=\frac{2\alpha}{\alpha^2+\omega^2}$		
	$f(t)=\begin{cases}0, t<0\\ e^{-\alpha t}\sin\beta t, t>0\end{cases}$	$F(p)=\frac{\beta}{(p+\alpha)^2+\beta^2}$ $F(\omega)=\frac{\beta}{(\alpha^2+\beta^2)-\omega^2+i2\alpha\omega}$		
	$f(t)=\begin{cases}0, t<0\\ e^{-\alpha t}(\cos\beta t-\frac{\alpha}{\beta}\sin\beta t), t>0\end{cases}$	$F(p)=\frac{p}{(p+\alpha)^2+\beta^2}$ $F(\omega)=\frac{i\omega}{(\alpha^2+\beta^2)-\omega^2+i2\alpha\omega}$		
	$f(t)=\frac{\sin(\pi\frac{1}{\tau})}{(\pi\frac{1}{\tau})}$	$F(\omega)=\begin{cases}\tau, \lvert\omega\rvert<\frac{\pi}{\tau}\\ 0, \lvert\omega\rvert>\frac{\pi}{\tau}\end{cases}$		
	$f(t)=\lim_{\tau\to 0}\begin{cases}\frac{1}{\tau}, \lvert t\rvert<\frac{\tau}{2}\\ 0, \lvert t\rvert>\frac{\tau}{2}\end{cases}$ $=\delta(t)$ (DELTA FUNCTION)	$F(p)=F(\omega)=1$