Table of Important Fourier Transforms for Signals and Systems

$f(t) =$	$F(j\omega) =$
$e^{j\omega_0 t}$	$2\pi\delta(\omega-\omega_0)$
1	$2\pi\delta(\omega)$
$\sum_{n=-\infty}^{+\infty}\delta(t-nT)$	$\frac{2\pi}{T}\sum_{-\infty}^{+\infty}\delta(\omega-\frac{2\pi k}{T})$
$\begin{cases}1, \|t\| < T_1 \\ 0, \|t\| > T_1\end{cases}$	$\frac{2\sin(\omega T_1)}{\omega}$
$\frac{\sin(Wt)}{\pi t}$	$\begin{cases}1, \|\omega\| < W \\ 0, \|\omega\| > W\end{cases}$
$\delta(t)$	1
$u(t)$	$\frac{1}{j\omega}+\pi\delta(\omega)$
$e^{-at}u(t), Re\{a\} > 0$	$\frac{1}{a+j\omega}$
$te^{-at}u(t), Re\{a\} > 0$	$\frac{1}{(a+j\omega)^2}$
$rect(\frac{t}{\tau})$	$\tau sinc(\frac{\omega\tau}{2})$
$\frac{B}{2\pi}sinc(\frac{Bt}{2})$	$rect(\frac{\omega}{B})$
$triangle(t)$	$sinc^2(\frac{\omega}{2})$
$Acos\left(\frac{\pi t}{2\tau}\right)rect(\frac{t}{2\tau})$	$\frac{A\pi}{\tau}\frac{\cos(\omega\tau)}{((\pi/2\tau)^2-\omega^2)}$
$\sin(\omega_0 t)$	$\frac{\pi}{j}[\delta(\omega-\omega_0)-\delta(\omega+\omega_0)]$
$\cos(\omega_0 t)$	$\pi[\delta(\omega-\omega_0)-\delta(\omega+\omega_0)]$
$\sin(\omega_0 t)\,u(t)$	$\frac{\pi}{2j}[\delta(\omega-\omega_0)-\delta(\omega+\omega_0)]+\frac{j\omega}{\omega_0^2-\omega^2}$
$\cos(\omega_0 t)\,u(t)$	$\frac{\pi}{2}[\delta(\omega-\omega_0)-\delta(\omega+\omega_0)]\ +\frac{\omega^2}{\omega_0^2-\omega^2}$
$e^{-\alpha t}\sin(\omega_0 t)\,u(t)$	$\frac{(\alpha+j\omega)}{\omega_0^2+(\alpha+j\omega)^2}$
$e^{-\alpha t}\cos(\omega_0 t)\,u(t)$	$\frac{\omega_0}{\omega_0^2+(\alpha+j\omega)^2}$
$e^{-\alpha\|t\|}$	$\frac{2\alpha}{\alpha^2+\omega^2}$
$e^{-t^2/2\sigma^2}$	$\sigma\sqrt{2\pi}e^{-\sigma^2\omega^2/2}$