Continuous time Fourier transform	Discrete time Fourier transform.	Laplace Transform.	
$X(j\omega) = \int_{-\infty}^{\infty} x(t)\, e^{-j\omega t}\, dt$	$X(e^{j\omega}) = \sum_{n=-\infty}^{\infty} x(n)\, e^{-j\omega n}$.	$X(s) = \int_{-\infty}^{\infty} x(t)\, e^{-st}\, dt$	1. Formula.
$x(t) = \frac{1}{2\pi} \int_{-\infty}^{\infty} X(j\omega)\, e^{j\omega t}\, d\omega$	$x(n) = \frac{1}{2\pi} \int_{2\pi} X(e^{j\omega})\, e^{j\omega n}\, d\omega$	$x(t) = \frac{1}{2\pi j} \int_{\sigma-j\infty}^{\sigma+j\infty} X(s)\, e^{st}\, ds$	2. Inverse Formula
$a_1 x_1(t) + a_2 x_2(t) \longleftrightarrow a_1 X_1(j\omega) + a_2 X_2(j\omega)$	$a_1 x_1(n) + a_2 x_2(n) \leftrightarrow a_1 X_1(e^{j\omega}) + a_2 X_2(e^{j\omega})$	$a x_1(t) + b x_2(t) \leftrightarrow a X_1(s) + b X_2(s)$	3. Linearity
$x(t-t_0) \longleftrightarrow e^{-j\omega t_0} X(j\omega)$	$x[n-n_0] \longleftrightarrow e^{-j\omega n_0} X(e^{j\omega})$	$x(t-t_0) \longleftrightarrow e^{-st_0} X(s)$	4. Time shifting
$e^{j\omega_0 t} x(t) \longleftrightarrow X(j(\omega-\omega_0))$	$e^{j\omega_0 n} x[n] \longleftrightarrow X(e^{j(\omega-\omega_0)})$	$e^{s_0 t} x(t) \longleftrightarrow X(s-s_0)$	5. Frequency shifting
$x(at) \longleftrightarrow \frac{1}{\lvert a\rvert} X\left(\frac{j\omega}{a}\right)$	-	$x(at) \longleftrightarrow \frac{1}{\lvert a\rvert} X\left(\frac{s}{a}\right)$	6. Time scaling
$\frac{d}{dt}(x(t)) \longleftrightarrow j\omega X(j\omega)$	$x[n] - x[n-1] \longleftrightarrow (1-e^{-j\omega}) \cdot X e^{j\omega}$	$\frac{d}{dt} x(t) \longleftrightarrow s X(s)$	7. Diff (in t) or differencing
$t x(t) \longleftrightarrow j \frac{d}{d\omega} X(j\omega)$	$n x[n] \longleftrightarrow j \frac{d}{d\omega} X(e^{j\omega})$	$-t x(t) \longleftrightarrow \frac{d}{ds} X(s)$	8. Diff in frequency

$\int_{-\infty}^{t} x(t)\,dt \longleftrightarrow \frac{1}{j\omega} X(j\omega) + \pi X(0)\delta(\omega)$	$\sum_{k=-\infty}^{n} x[k] \longleftrightarrow \frac{1}{1-e^{-j\omega}} X(e^{j\omega})$	$\int_{-\infty}^{t} x(t)\,dt \longleftrightarrow \frac{1}{s} X(s)$	9. Integration (Accumulation)
Parseval's relation for Aperiodic signals $\int_{-\infty}^{\infty} \lvert x(t) \rvert^2 dt = \frac{1}{2\pi} \int_{-\infty}^{\infty} \lvert X(j\omega) \rvert^2 d\omega.$	Parseval's relation for Aperiodic signals $\sum_{n=-\infty}^{\infty} \lvert x[n] \rvert^2 = \frac{1}{2\pi} \int_{2\pi} \lvert X(e^{j\omega}) \rvert^2 d\omega$	IVT and FVT. IVT: $x(0^+) = \lim_{s\to\infty} sX(s)$ FVT: $x(\infty) = \lim_{s\to 0} sX(s)$	10. Theorems
$\sum_{k=-\infty}^{\infty} X_k e^{jk\omega_0 t} \longleftrightarrow 2\pi \sum_{k=-\infty}^{\infty} X_k \delta(\omega - k\omega_0)$	$\sum_{k=N} X_k e^{jk\omega_0 n} \longleftrightarrow 2\pi \sum_{k=-\infty}^{\infty} X_k \delta(\omega - k\omega_0)$	–	Transforms of Periodic signals
$x(-t) \longleftrightarrow X(-j\omega)$	$x[-n] \longleftrightarrow X(e^{-j\omega})$	$x(-t) \longleftrightarrow X(-s)$	11. Time reversal
$x^*(t) \longleftrightarrow X^*(-j\omega)$	$x^*[n] \longleftrightarrow X^*(e^{-j\omega})$	$x^*(t) \longleftrightarrow X^*(s)$	12. Conjugation
$Ev\{x(t)\} \longleftrightarrow Re\{X(j\omega)\}$ $Od\{x(t)\} \longleftrightarrow j\,Im\{X(j\omega)\}$ $x(t) \rightarrow$ real.	$Ev\{x[n]\} \longleftrightarrow Re\{X(e^{j\omega})\}$ $Od\{x[n]\} \longleftrightarrow j\,Im\{X(e^{j\omega})\}$ $x[n] \longrightarrow$ real.	–	13. Even + odd symmetry
$x(t) * y(t) \longleftrightarrow X(j\omega)Y(j\omega)$ $\boxed{\angle Y(j\omega) = \angle X(j\omega) + \angle H(j\omega)}$	$x[n] * y[n] \longleftrightarrow X(e^{j\omega})Y(e^{j\omega})$	$x(t) * y(t) \longleftrightarrow X(s)Y(s)$	14. Convolution

$e^{j\omega_0 t} \longleftrightarrow 2\pi\delta(\omega-\omega_0)$	$e^{j\omega_0 n} \longleftrightarrow \sum_{m=-\infty}^{\infty} 2\pi\,\delta(\omega-\omega_0-2\pi m)$ $\frac{1}{2} \leftrightarrow$ If π	—
$te^{-at}u(t) \longleftrightarrow \frac{1}{(a+j\omega)^2}$		
$\cos\omega_0 t \longleftrightarrow \pi[\delta(\omega-\omega_0)+\delta(\omega+\omega_0)]$	$\cos\omega_0 n \longleftrightarrow \pi \sum_{m=-\infty}^{\infty} \{\delta(\omega-\omega_0-2\pi m) + \delta(\omega+\omega_0-2\pi m)\}$	$\cos\omega_0 t\, u(t) \longleftrightarrow \frac{s}{s^2+\omega_0^2}$
$\sin\omega_0 t \longleftrightarrow \frac{\pi}{j}[\delta(\omega-\omega_0)+\delta(\omega+\omega_0)]$	$\sin\omega_0 n \longleftrightarrow \frac{\pi}{j}\sum_{m=-\infty}^{\infty}\{\delta(\omega-\omega_0-2\pi m) + \delta(\omega+\omega_0-2\pi m)\}$	$\sin\omega_0 t\, u(t) \longleftrightarrow \frac{\omega_0}{s^2+\omega_0^2}$
$A \longleftrightarrow 2\pi A\delta(\omega)$	$A \longleftrightarrow 2\pi A \sum_{m=-\infty}^{\infty} \delta(\omega-2\pi m)$	$A u(t) \longleftrightarrow \frac{A}{s}$
$\delta(t) \longleftrightarrow 1$	$\delta(n) \longleftrightarrow 1$	$\delta(t) \longleftrightarrow 1$
$e^{-at}u(t) \longleftrightarrow \frac{1}{a+j\omega}$ $a>0$	$a^n u(n) \longleftrightarrow \frac{1}{1-ae^{-j\omega}}$ $\lvert a\rvert<1$	$e^{-at}u(t) \longleftrightarrow \frac{1}{s+a}$; $Re\{s\} > -a$
$e^{-a\lvert t\rvert} \longleftrightarrow \frac{2a}{a^2+\omega^2}$	$n a^n u(n) \longleftrightarrow \frac{ae^{-j\omega}}{(1-ae^{-j\omega})^2} + \frac{1}{1-ae^{-j\omega}}$	$-e^{-at}u(-t) \longleftrightarrow \frac{1}{s+a}$; $Re\{s\} < -a$
$u(t) \longleftrightarrow \frac{1}{j\omega} + \pi X(0)\delta(\omega)$	$(n+1)a^{n+1}u(n+1) \longleftrightarrow \frac{a}{(1-ae^{-j\omega})^2}$	$\frac{d^n}{dt^n}x(t) \overset{\mathcal{L}}{\longleftrightarrow} s^n X(s) - \sum_{k=1}^{n} s^{n-k} x^{k-1}(0^-)$ $-\dot{x}(0^-)$ $y_{(n-1)}$
$u[n] \longleftrightarrow \frac{1}{1-ae^{-j\omega}} + \sum_{m=-\infty}^{\infty} \pi\,\delta(\omega-2\pi m)$	$n+1\, a^n u(n+1) \longleftrightarrow \frac{1}{(1-ae^{-j\omega})^2}$	