$f(t)$

Real Fourier series	$f(t)=a_0+\sum_{n=1}^{\infty}[a_n\cos(\frac{n\pi t}{p})+b_n\sin(\frac{n\pi t}{p})]$ $a_0=\frac{1}{2p}\int_{-p}^{p}f(t)dt$ $a_n=\frac{1}{p}\int_{-p}^{p}f(t)\cos(\frac{n\pi t}{p})dt,\ n=1,2,3...$ $b_n=\frac{1}{p}\int_{-p}^{p}f(t)\sin(\frac{n\pi t}{p})dt,\ n=1,2,3,\ ...$
Complex Fourier series	$f(t)=\sum_{n=-\infty}^{\infty}c_n e^{i\frac{n\pi t}{p}}$ $c_n=\frac{1}{2p}\int_{-p}^{p}f(t)e^{-i\frac{n\pi}{p}t}dt$

Fourier 轉換

$t \leftrightarrow \omega$

$F(\omega)$

Fourier Integral (Fourier 正轉換)	$F(\omega)=\int_{-\infty}^{\infty}f(t)e^{-i\omega t}dt$
Fourier 逆轉換	$f(t)=\frac{1}{2\pi}\int_{-\infty}^{\infty}F(\omega)e^{i\omega t}d\omega$

$i\omega \Leftrightarrow s$

$F(s)$

Laplace 正轉換	$F(s)=\int_{0}^{\infty}f(t)e^{-st}dt$
Laplace 逆轉換	$f(t)=\frac{1}{2\pi i}\int_{\alpha-i\infty}^{\alpha+i\infty}F(s)e^{st}ds$

Laplace 轉換

$t \leftrightarrow s$