Transform	Equations
Fourier Series (FS)	$c_n = \frac{1}{2\pi}\int_{-\pi}^{\pi} f(t)e^{-int}dt$ and $f(t) = \sum_{-\infty}^{\infty} c_n e^{int}$ frequency: discrete, time: continuous
Fourier Transform (FT)	$F(\omega) = \int_{-\infty}^{\infty} f(t)e^{-i\omega t}dt$ and $f(t) = \frac{1}{2\pi}\int_{-\infty}^{\infty} F(\omega)e^{i\omega t}d\omega$ frequency: continuous, time: continuous
Z Transform (ZT)	$X(z) = \sum_{0}^{\infty} x[n]z^{-n}$ and $x[n] = \frac{1}{2\pi i}\int_C X(z)z^{n-1}dz$ (C is a closed contour in the ROC) frequency: continuous, time: discrete
Laplace Transform (LT)	$F(s) = \int_0^{\infty} f(t)e^{-st}dt$ and $f(t) = \frac{1}{2\pi i}\int_L F(s)e^{st}ds$ (L is the Laplace inversion contour) frequency: continuous, time: continuous analytic in 1/2 of the frequency plane
DTFT	$X(\omega) = \sum_{-\infty}^{\infty} x[n]e^{-i\omega n}$ and $x[n] = \frac{1}{2\pi}\int_{-\pi}^{\pi} X(\omega)e^{i\omega n}d\omega$ frequency: continuous, time: discrete
DFT	$X_k = \sum_{n=0}^{N-1} x_n e^{-\frac{2\pi i}{N}kn}$ and $x_n = \frac{1}{N}\sum_{k=0}^{N-1} X_k e^{\frac{2\pi i}{N}kn}$ for k, n = 0, ..., N-1 frequency: discrete, time: discrete

Transforms.