

Transform Tables

- [List of Integral / Space Transforms](#)
- [Fourier Analysis](#)
- [Units and System Conversions](#)

Useful Equations

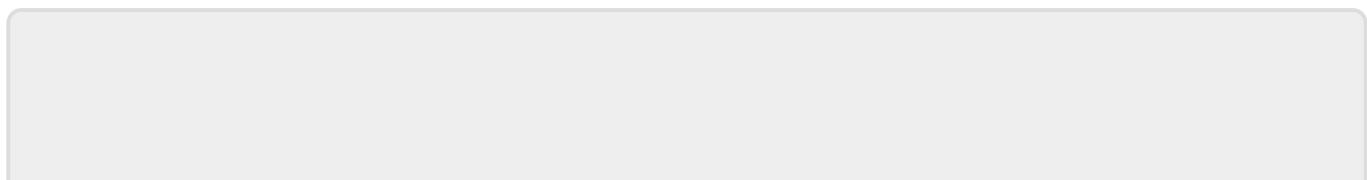
Eulers Formula	$e^{j\varphi} = \cos(\varphi) + j\sin(\varphi)$
Eulers Cosine	$\cos(x) = \frac{e^{jx} + e^{-jx}}{2}$
Eulers Sine	$\sin(x) = \frac{je^{jx} - je^{-jx}}{2}$
Angular Frequency	$\omega = 2\pi f$
Period	$T = \frac{1}{f}$
Percent Error	$\left \frac{\text{expected-theoretical}}{\text{theoretical}} \right \cdot 100$

Common Integrals

$\int u \cdot v \, dx = uv - \int v \cdot du$
$\int \frac{1}{ax+b} \, dx = \frac{1}{a} \ln(ax+b)$
$\int \sin(x) \, dx = -\cos(x)$
$\int \cos(x) \, dx = \sin(x)$
$\int e^{ax} \, dx = \frac{1}{a} e^{ax}$
$\int x e^x \, dx = (x-1)e^x$

Common Derivatives

$\frac{d}{dx}(f(x)g(x)) = f(x)\dot{g}(x) + \dot{f}(x)g(x)$
$\frac{d}{dx}\left(\frac{f(x)}{g(x)}\right) = \frac{f(x)\dot{g}(x) - \dot{f}(x)g(x)}{(g(x))^2}$
$\frac{d}{dx}(\sin(x)) = \cos(x)$
$\frac{d}{dx}(\cos(x)) = -\sin(x)$
$\frac{d}{dx}(\tan(x)) = \sec^2(x)$
$\frac{d}{dx}(\sin^{-1}(x)) = \frac{1}{\sqrt{1-x^2}}$
$\frac{d}{dx}(\cos^{-1}(x)) = \frac{-1}{\sqrt{1-x^2}}$
$\frac{d}{dx}(\tan^{-1}(x)) = \frac{1}{1+x^2}$
$\frac{d}{dx}(a^x) = a^x \ln(a)$
$\frac{d}{dx}(\ln x) = \frac{1}{x}$
$\frac{d}{dx}(\log_a(x)) = \frac{1}{x \ln(a)}$



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