Some helpful formulas

$\cos x \cos y = \frac{1}{2}[\cos(x-y) + \cos(x+y)]$	$\tan^2 x + 1 = \sec^2 x$	$1 + \cot^2 x = \csc^2 x$
$\sin x \cos y = \frac{1}{2}[\sin(x-y) + \sin(x+y)]$	$\sin^2 x + \cos^2 x = 1$	$2\sin^2 x = 1 - \cos(2x)$
$\sin x \sin y = \frac{1}{2}[\cos(x-y) - \cos(x+y)]$	$2\sin x \cos x = \sin(2x)$	$2\cos^2 x = 1 + \cos(2x)$
$\int \sec x\, dx = \ln\lvert\sec x + \tan x\rvert$	$\int \tan x\, dx = \ln\lvert\sec x\rvert$	$\int \frac{1}{\sqrt{a^2 - x^2}}\, dx = \sin^{-1}\left(\frac{x}{a}\right)$
$\int \csc x\, dx = \ln\lvert\csc x - \cot x\rvert$	$\int \cot x\, dx = \ln\lvert\sin x\rvert$	$\int \frac{1}{x^2 + a^2}\, dx = \frac{1}{a}\tan^{-1}\left(\frac{x}{a}\right)$
$L = \int_a^b \sqrt{1 + \left[\frac{dy}{dx}\right]^2}\, dx$	$\overline{x} = \frac{1}{m}\sum_{i=1}^{n} m_i x_i$	$\overline{x} = \frac{1}{A}\int_a^b x f(x)\, dx$
$S = \int_a^b 2\pi y\sqrt{1 + \left[\frac{dy}{dx}\right]^2}\, dx$	$\overline{y} = \frac{1}{m}\sum_{i=1}^{n} m_i y_i$	$\overline{y} = \frac{1}{A}\int_a^b \frac{1}{2}[f(x)]^2\, dx$
$P(t) = \frac{M}{1 + Ae^{-kt}}, \quad A = \frac{M - P_0}{P_0}$	$I(x) = e^{\int P(x)\, dx}$	$y_n = y_{n-1} + hF(x_{n-1}, y_{n-1})$
$x = r\cos\theta, y = r\sin\theta$	$A = \int_a^b \frac{1}{2}[f(\theta)]^2\, d\theta$	$L = \int_a^b \sqrt{r^2 + \left[\frac{dr}{d\theta}\right]^2}\, d\theta$
$\frac{dy}{dx} = \frac{\frac{dy}{dt}}{\frac{dx}{dt}}$	$L = \lim_{n\to\infty} \sqrt[n]{\lvert a_n\rvert}$	$c = \lim_{n\to\infty} \frac{a_n}{b_n}$
$L = \lim_{n\to\infty} \left\lvert\frac{a_{n+1}}{a_n}\right\rvert$	$\sum_{n=0}^{\infty} x^n = \frac{1}{1-x}$	$e^x = \sum_{n=0}^{\infty} \frac{x^n}{n!}$
$\sin x = \sum_{n=0}^{\infty} (-1)^n \frac{x^{2n+1}}{(2n+1)!}$	$\cos x = \sum_{n=0}^{\infty} (-1)^n \frac{x^{2n}}{(2n)!}$	$\tan^{-1} x = \sum_{n=0}^{\infty} (-1)^n \frac{x^{2n+1}}{2n+1}$
$\ln(1+x) = \sum_{n=1}^{\infty} (-1)^{n-1} \frac{x^n}{n}$	$(1+x)^k = \sum_{n=0}^{\infty} \binom{k}{n} x^n$	$\sum_{n=0}^{\infty} \frac{f^{(n)}(a)}{n!}(x-a)^n$
$\mathbf{a}\cdot\mathbf{b} = \lvert\mathbf{a}\rvert\lvert\mathbf{b}\rvert\cos\theta$	$\text{proj}_{\mathbf{a}}\mathbf{b} = \frac{\mathbf{a}\cdot\mathbf{b}}{\lvert\mathbf{a}\rvert^2}\mathbf{a}$	$\lvert\mathbf{a}\times\mathbf{b}\rvert = \lvert\mathbf{a}\rvert\lvert\mathbf{b}\rvert\sin\theta$