Some equations you may or may not need:

$$a_n = \frac{1}{l}\int_{-l}^{l} f(x)\cos\frac{n\pi x}{l}dx \qquad b_n = \frac{1}{l}\int_{-l}^{l} f(x)\sin\frac{n\pi x}{l}dx \qquad c_n = \frac{1}{l}\int_{-l}^{l} f(x)e^{-\frac{in\pi x}{l}}dx$$

$$\frac{1}{\pi}\int_{-\pi}^{\pi}\cos mx\cos nx dx = \delta_{mn} \qquad \frac{1}{\pi}\int_{-\pi}^{\pi}\sin mx\sin nx dx = \delta_{mn} \qquad \frac{1}{\pi}\int_{-\pi}^{\pi}\cos mx\sin nx dx = 0$$

$$\langle f(x)\rangle = \frac{1}{b-a}\int_{a}^{b} f(x)dx \qquad |z| = \sqrt{x^2+y^2}; \tan\theta = y/x \qquad \ln z = Ln|z| + i\theta + i2\pi n$$

$$w^z = e^{z\ln w} \quad \sinh z = \frac{e^z - e^{-z}}{2}; \cosh z = \frac{e^z + e^{-z}}{2} \quad e^z = e^x(\cos y + i\sin y)$$

$$f(x) = \sum_{n=-\infty}^{\infty} c_n e^{\frac{in\pi x}{l}} \quad f(x) = \tfrac{1}{2}a_0 + \sum_{n=1}^{\infty} a_n\cos\frac{n\pi x}{l} + \sum_{n=1}^{\infty} b_n\sin\frac{n\pi x}{l} \quad \mathrm{B}(p,q) = \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}.$$

$$\Gamma(p) = \int_0^{\infty} t^{p-1}e^{-t}dt$$

$\Gamma(p+1) = p!$ for integer $p > 0$,

$\Gamma(p+1) = p\Gamma(p)$ for all real p.

$$f(x) = \sum_{n=0}^{\infty}\frac{f^{(n)}(a)}{n!}(x-a)^n$$

for $p > 0,\ q > 0$:

$$\mathrm{B}(p,q) = 2\int_0^{\pi/2}(\sin\theta)^{2p-1}(\cos\theta)^{2q-1}d\theta,$$

$$\mathrm{B}(p,q) = \int_0^1 x^{p-1}(1-x)^{q-1}dx, \qquad erf(x) = \frac{2}{\sqrt{\pi}}\int_0^x e^{-t^2}dt$$

$$\mathrm{B}(p,q) = \int_0^{\infty}\frac{y^{p-1}}{(1+y)^{p+q}}dy.$$

$$\Gamma(p)\Gamma(1-p) = \frac{\pi}{\sin\pi p}. \ \mathrm{B}(p,q) = \mathrm{B}(q,p),\ n! = \Gamma(n+1) = n^n e^{-n}\sqrt{2\pi n}$$