$$\cos(x+iy) = \cos x \cosh y - i \sin x \sinh y,$$

$$\sin(x+iy) = \sin x \cosh y + i \cos x \sinh y$$

$$\cos\theta = \frac{e^{i\theta}+e^{-i\theta}}{2}, \quad \sin\theta = \frac{e^{i\theta}-e^{-i\theta}}{2i}$$

$$\sin w = \sum_{n=0}^{\infty} \frac{(-1)^n w^{2n+1}}{(2n+1)!} \qquad \cos w = \sum_{n=0}^{\infty} \frac{(-1)^n w^{2n}}{(2n)!}$$

$$e^w = \sum_{n=0}^{\infty} \frac{w^n}{n!} \qquad \frac{1}{1-w} = \sum_{n=0}^{\infty} w^n, \ |w| < 1$$

$$u_x = v_y, \qquad u_y = -v_x$$

$$f(z) = \frac{z-z_1}{z-z_3}\,\frac{z_2-z_3}{z_2-z_1}$$

$$\mathrm{Res}_{z=a}\, f(z) = \frac{1}{(n-1)!} \lim_{z\to a} \frac{d^{n-1}}{dz^{n-1}}[(z-a)^n f(z)]$$

$$f^{(n)}(z) = \frac{n!}{2\pi i} \oint \frac{f(\zeta)}{(\zeta - z)^{n+1}}\, d\zeta$$

$$f_y - \frac{d}{dx} f_{y'} = 0 \qquad f - y' f_{y'} = C,$$

$$L = T - V, \qquad L_{q_i} - \frac{d}{dt} L_{\dot q_i} = 0, \quad i = 1, \ldots, N, \qquad L - \sum_{i=1}^{N} \dot q_i L_{\dot q_i} = C$$

$$\frac{\partial f}{\partial w}(w, \nabla w) - \sum_{i=1}^{3} \frac{\partial}{\partial x_i}\left(\frac{\partial f}{\partial w_i}(w, \nabla w)\right) = 0$$

$$\int_{\partial\Omega} G\, dy - F\, dx = \int\int_{\Omega} \left(\frac{\partial F}{\partial y} + \frac{\partial G}{\partial x}\right) dx\, dy$$

$$\int_{\partial\Omega} \mathbf{v}\cdot\mathbf{n}\, dS = \int_{\Omega} \nabla\cdot\mathbf{v}\, dV$$

$$\lambda_i^1 = \mathbf{e}_i^0 \cdot A_1 \mathbf{e}_i^0, \qquad \mathbf{e}_i^1 = \sum_{j\neq i} \frac{e_j^0 \cdot A_1 \mathbf{e}_i^0}{\lambda_i^0 - \lambda_j^0}\, \mathbf{e}_j^0$$