Mecânica Clássica I – Fórmulas – V09.04.2010

$$\boldsymbol{e}_r = \cos\theta\boldsymbol{i} + \sin\theta\boldsymbol{j} \qquad \boldsymbol{e}_\theta = -\sin\theta\boldsymbol{i} + \cos\theta\boldsymbol{j}$$

$$x(t) = A\mathrm{e}^{-\beta t}\cos\left(t\sqrt{\omega_0^2 - \beta^2} - \delta\right) \qquad x(t) = A_1\mathrm{e}^{(\sqrt{\beta^2-\omega_0^2}-\beta)t} + A_2\mathrm{e}^{-(\sqrt{\beta^2-\omega_0^2}+\beta)t}$$

$$x(t) = (A + Bt)\mathrm{e}^{-\beta t} \qquad x(t) = \frac{A}{\sqrt{(\omega_0^2-\omega^2)^2 + 4\omega^2\beta^2}}\cos\left[\omega t - \arctan\left(\frac{2\beta\omega}{\omega_0^2-\omega^2}\right)\right]$$

$$\frac{1}{2}m\ell^2\left[\left(\frac{du}{d\theta}\right)^2 + u^2\right] + V(u^{-1}) = E$$

$$\frac{d^2u}{d\theta^2} + u = -\frac{F(u^{-1})}{m\ell^2u^2} \qquad r = \frac{\alpha}{1+\varepsilon\cos\theta}$$

$$\boldsymbol{F}_{\text{efe}} = \boldsymbol{F} - m\ddot{\boldsymbol{R}} - m\dot{\boldsymbol{\omega}}\times\boldsymbol{r} - m\boldsymbol{\omega}\times(\boldsymbol{\omega}\times\boldsymbol{r}) - 2m\boldsymbol{\omega}\times\boldsymbol{v}$$