

$$/ \quad n^2 r^4 \dot{\phi}^2 - k r^2 \phi^2 = K$$

$$r^2 (n^2 r^2 - k) \dot{\phi}^2 = \frac{r^2}{\alpha} (\beta n^2 r^2 - 1) \dot{\phi}^2 \quad \left| \begin{array}{l} \beta = \frac{1}{k} \quad \text{cte} \\ \alpha = k \quad \text{cte} \end{array} \right.$$

$$r^2 (\beta n^2 r^2 - 1) \dot{\phi}^2 = K \quad / \sqrt{\quad}$$

$$\pm r (\beta n^2 r^2 - 1)^{\frac{1}{2}} \dot{\phi} = K$$

$$\dot{\phi} = \frac{K}{r (\beta n^2 r^2 - 1)^{\frac{1}{2}}} \quad \dot{\phi} = \frac{d\phi}{dr} \quad / \left(\frac{1}{C} \right)$$

$$\left(\frac{d\phi}{dr} \right) = K r (\beta n^2 r^2 - 1)^{\frac{1}{2}}$$

$$\left| \frac{dr}{d\phi} = K r (\beta n^2 r^2 - 1)^{\frac{1}{2}} \right|$$