$$\text{Rot KE} = \frac{1}{2} I \omega^2$$

$$\begin{aligned} \text{Rot KE}_\text{f} &= \text{Rot KE}_\text{i} + \text{Work}_\text{net} \\ \text{Rot KE}_\text{f} &= \text{Rot KE}_\text{i} + \int \vec{\tau}_\text{net} \cdot d\vec{\theta} \end{aligned}$$