**Key Equations**

$τ=rF$ $τ=rFsinθ$ $τ=Iα$

$ω=\frac{∆θ}{∆t}$ $α=\frac{∆ω}{∆t}$

$∆x=∆θr$ $v=ωr$ $a=∆αr$

$ω=w\_{0}+αt$ $∆θ=w\_{0}t+\frac{1}{2}αt^{2}$ $ω^{2}=ω\_{o}^{2}+2α∆θ$

$v=v\_{0}+at$ $∆x=v\_{0}t+\frac{1}{2}at^{2}$ $v^{2}=v\_{o}^{2}+2a∆θ$

$I\_{point mass}=mr^{2}$ $τ\_{ccw}=τ\_{cw}$

$KE\_{rot}=\frac{1}{2}Iω^{2}$ $KE\_{translational}=\frac{1}{2}mv^{2}$ $PE\_{grav}=mgh$

$$PE\_{o}+KE\_{o}=PE\_{F}+KE\_{F}$$

$L=Iω$ $L\_{o}=L\_{F}$ $I\_{o}ω\_{o}= I\_{F}ω\_{F}$

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