A4

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1 Rotational Equations of Motion

Essentially, suvat in angular form.

1. Angular acceleration $\alpha = \dfrac{\mathrm{d}\omega}{\mathrm{d}t}$
2. $\omega_1 = \omega_0 + \alpha t$
3. $\theta = \omega_0 t + \dfrac{1}{2}\alpha t^2$
4. $\omega_1^2 = \omega_0^2 + 2\alpha\theta$
5. $\theta = \left(\dfrac{\omega_0 + \omega_1}{2}\right) t$

2 Moment of Inertia

Inertial mass is the resistance to linear acceleration, while moment of inertia is the resistance to angular acceleration.

$$I = \Sigma k m r^2$$

where k is a coefficient that depends on the shape of the object.

3 Torque

Rotational equiv. of Newton's Second Law.

$$\tau = I\alpha = Fr\sin\theta$$