Equations of Motion for Constant Linear and for Constant Angular Acceleration

Linear Formula	Missing Variable		Angular Formula
$v = v_0 + at$	Δx	$\Delta\theta$	$\omega = \omega_0 + \alpha t$
$\Delta x = v_0 t + \frac{1}{2}at^2$	v	ω	$\Delta\theta = \omega_0 t + \frac{1}{2}\alpha t^2$
$v^2 = v_0^2 + 2a\Delta x$	t	t	$\omega^2 = \omega_0^2 + 2\alpha\Delta\theta$
$\Delta x = \frac{1}{2}(v + v_0)t$	a	α	$\Delta\theta = \frac{1}{2}(\omega + \omega_0)t$
$\Delta x = vt - \frac{1}{2}at^2$	v_0	ω_0	$\Delta\theta = \omega t - \frac{1}{2}\alpha t^2$

Some Corresponding Relations for Translational and Rotational Motion

Pure Translation (Fixed Direction)		**Pure Rotation** (Fixed Axis)	
Position	x	Angular Position	θ
Velocity	v	Angular Velocity	$\omega = d\theta/dt$
Acceleration	a	Angular Acceleration	$\alpha = d\omega/dt$
Mass	m	Moment of Inertia	I
Newton's 2^{nd} Law	F = ma	Newton's 2^{nd} Law	$\tau = I\alpha$
Work	$W = \int Fdx$	Work	$W = \int \tau d\theta$
Kinetic Energy	$K = \frac{1}{2}mv^2$	Kinetic Energy	$K = \frac{1}{2}I\omega^2$
Power	P = Fv	Power	$P = \tau\omega$
Work - K.E. Theorem	$W = \Delta K$	Work - K.E. Theorem	$W = \Delta K$

More Corresponding Relations for Translational and Rotational Motion

Translational		Rotational	
Force	$\vec{F}$	Torque	$\vec{\tau} = \vec{r} \times \vec{F}$
Linear Momentum	$\vec{P}$ $\vec{P} = \Sigma \vec{P}_i$ $\vec{P} = \mathrm{M}\ \vec{v}_{CM}$	Angular Momentum	$\vec{L} = \vec{r} \times \vec{P}$ $\vec{L} = \Sigma \vec{L}_i$ $L_z = I\omega$
Newton's 2^{nd} Law	$\Sigma \vec{F}_{ext} = d\vec{P}/dt$	Newton's 2^{nd} Law	$\Sigma \vec{\tau}_{ext} = d\vec{L}/dt$
Conservation Law	$\vec{P} = \text{constant}$	Conservation Law	$\vec{L} = \text{constant}$