Summary of Translational & Rotational Quantities

Pure Translation (Fixed Direction)		Pure Rotation (Fixed Axis)	
Position	x	Angular Position	θ
Velocity	v	Angular Velocity	ω
Acceleration	a	Angular Acceleration	α
Translational Inertia (Mass)	m	Rotational Inertia	I
Kinematic Equations for Constant Acceleration	$\Delta v = a\Delta t$ $\Delta x = v_0 t + \frac{1}{2}at^2$ $v^2 = v_0{}^2 + 2a(\Delta x)$	Kinematic Equations for Constant Acceleration	$\Delta\omega = \alpha t$ $\Delta\theta = \omega_0 t + \frac{1}{2}\alpha t^2$ $\omega^2 = \omega_0^2 + 2\alpha(\Delta\theta)$
Newton's 2nd Law	$\sum \vec{F} = m\vec{a}$	Newton's 2nd Law *	$\sum \vec{\tau} = I\vec{\alpha}$
Kinetic Energy	$K = \frac{1}{2}mv^2$	Kin. Energy *	$K = \frac{1}{2}I\omega^2$
Work	$W = \int_{x_i}^{x_f} F(x)dx$	Work *	$W = \int_{\theta_i}^{\theta_f} \tau d\theta$
Power	$P = \frac{dW}{dt} = \int_{v_i}^{v_f} Fdv$	Power *	$P = \frac{dW}{dt} = \int_{\omega_i}^{\omega_f} \tau d\omega$
Work-Energy Theorem	$W = \Delta K = \frac{1}{2}m(v_f^2 - v_i^2)$	Work-Energy Theorem *	$W = \Delta K = \frac{1}{2}I(\omega_f^2 - \omega_i^2)$

Relationship between Linear and Angular Variables*:

$$s = r\theta \qquad v = r\omega \qquad a_t = r\alpha \qquad a_r = \frac{v^2}{r} = r\omega^2$$

***radian measure**