Analogs in Rotational and Linear Motion

Linear Motion			***Angular Motion***
Displacement	Δx	Angular Displacement	Δθ
Velocity	v	Angular Speed	ω
Acceleration	a	Angular Acceleration	α
Constant Acceleration Equations	$x = x_o + v_o t + \frac{1}{2}at^2$	Constant Angular Acceleration Equations	$\theta = \theta_o + \omega_o t + \frac{1}{2}\alpha t^2$
	$v = v_o + at$		$\omega = \omega_o + \alpha t$
	$v^2 = v_o^2 + 2a(x - x_o)$		$\omega^2 = \omega_o^2 + 2\alpha(\theta - \theta_o)$
	$x = x_o + \left(\frac{v_o + v}{2}\right)t$		$\theta = \theta_o + \left(\frac{\omega_o + \omega}{2}\right)t$
Force	F	Torque	τ
Mass	M	Moment of Inertia	I
Work	$w = \int F dx$	Work	$w = \int \tau d\theta$
Translational Kinetic Energy	$K = \frac{1}{2}mv^2$	Rotational Kinetic Energy	$K_R = \frac{1}{2}I\omega^2$
Power	P = Fv	Power	P = τω
Linear Momentum	p = mv	Angular Momentum	L = I ω
Newton's 2nd Law	$\sum F_{ext} = ma = \frac{dp}{dt}$	Newton's 2nd Law	$\sum \tau_{ext} = I\alpha = \frac{dL}{dt}$
Work-Kinetic Energy Theorem	$W_{net} = \frac{1}{2}mv_f^2 - \frac{1}{2}mv_i^2$	Work-Kinetic Energy Theorem	$W_{net} = \frac{1}{2}I\omega_f^2 - \frac{1}{2}I\omega_i^2$