IMPORTANT FORMULA IN SYSTEM OF PARTICLES

Formula Name	Expression	SI Unit	Symbol
Centre of Mass	$X = \frac{\Sigma m_i \cdot x_i}{\Sigma m_i}$	meter (m)	X
Linear Momentum	$P = m \cdot v$	kilogram meter per second (kg·m/s)	P
Angular Momentum	$L = r \times p$	kilogram meter squared per second (kg·m²/s)	L
Moment of Inertia	$I = \Sigma m_i \cdot r_i^2$	kilogram meter squared (kg·m²)	I
Rotational Kinetic Energy	$KE_{\text{rot}} = 0.5 \cdot I \cdot \omega^2$	joule (J)	KE_{rot}
Torque	$\tau = r \times F$	newton meter (N·m)	τ
Angular Velocity	$\omega = \frac{d\theta}{dt}$	radian per second (rad/s)	ω
Rolling Motion Velocity	$v = r \cdot \omega$	meter per second (m/s)	v
Angular Acceleration	$\alpha = \frac{d\omega}{dt}$	radian per second squared (rad/s²)	α
Conservation of Angular Momentum	$L_{\text{initial}} = L_{\text{final}}$	kilogram meter squared per second (kg·m²/s)	L