

<b>Uniform motion</b> $v = cte, a = 0$	$x = x_0 + v \cdot t$
<b>Uniformly accelerated motion</b> $a = cte$	$x = x_0 + v_0 \cdot t + \frac{1}{2} a \cdot t^2$ $v = v_0 + a \cdot t$ $v^2 = v_0^2 + 2a \cdot (x - x_0)$
<b>Circular motion</b> $\omega = cte, \alpha = 0$	$\theta = \theta_0 + \omega \cdot t$
<b>Circular uniformly accelerated motion</b> $\alpha = cte$	$\theta = \theta_0 + \omega_0 \cdot t + \frac{1}{2} \alpha \cdot t^2$ $\omega = \omega_0 + \alpha \cdot t$
<b>Other formulas</b>	Instantaneous velocity $\vec{v} = \frac{d\vec{r}}{dt}$
	Instantaneous acceleration $\vec{a} = \frac{d\vec{v}}{dt}$
	Average velocity $\vec{v}_a = \frac{\Delta\vec{r}}{\Delta t} = \frac{\vec{r}_F - \vec{r}_I}{t_F - t_I}$
	Average acceleration $\vec{a}_a = \frac{\Delta\vec{v}}{\Delta t} = \frac{\vec{v}_F - \vec{v}_I}{t_F - t_I}$
	Tangential acceleration $a_t = \frac{d \vec{v} }{dt}$
	Distance for circular motion $S = \theta \cdot R$
	Speed for circular motion $V = \omega \cdot R$
	Tangential acceleration for circular motion $a_t = \alpha \cdot R$
	Normal acceleration for circular motion $a_n = \frac{V^2}{R} = \omega^2 \cdot R$
Total acceleration $a^2 = a_t^2 + a_n^2$	
<b>Unit conversion</b>	<b>km / h</b> $\times 1000 / 3600 \rightarrow$ <b>m/s</b> <b>rpm</b> $\times 2\pi / 60 \rightarrow$ <b>rad/s</b> <b>rad</b> $\div 2\pi \rightarrow$ <b>turn</b>

Symbol	Magnitude	SI unit	Symbol	Magnitude	SI unit
$x, S$	Position, distance	m	$\theta$	Angular position	rad
$x_0$	Initial position	m	$\theta_0$	Initial angular position	rad
$v$	Velocity, Speed	m/s	$\omega$	Angular speed	rad/s
$v_0$	Initial speed (velocity)	m/s	$\omega_0$	Initial angular speed	rad/s
$a$	Total acceleration	m/s <sup>2</sup>	$\alpha$	Angular acceleration	rad/s <sup>2</sup>
$a_t$	Tangential acceleration	m/s <sup>2</sup>	$R$	Trajectory radius	m
$a_n$	Normal acceleration	m/s <sup>2</sup>			