

**UNIT 1 EXAM
EQUATION “CHEAT SHEET”**

Name	Equation	Variables
Average Speed	$v = \frac{d}{t}$	v: average speed d: distance t: time
Average Velocity	$\vec{v} = \frac{\Delta x}{t}$	v: average velocity Δx : displacement t: time
Acceleration	$\vec{a} = \frac{\Delta \vec{v}}{t} = \frac{\vec{v}_f - \vec{v}_i}{t}$	a: acceleration Δv : change in velocity v_i : initial velocity v_f : final velocity t: time
Kinematic Equation (Find final velocity, given initial velocity, acceleration, and time)	$\vec{v}_f = \vec{v}_i + \vec{a}t$	v_f : final velocity v_i : initial velocity a: acceleration t: time
Kinematic Equation (Find displacement, given initial velocity, acceleration, and time)	$\Delta x = \vec{v}_i t + \frac{1}{2} \vec{a} t^2$	Δx : displacement v_i : initial velocity a: acceleration t: time
Kinematic Equation (Find acceleration, given displacement, initial velocity, and time)	$\vec{a} = \frac{2(\Delta x - \vec{v}_i t)}{t^2}$	Δx : displacement v_i : initial velocity a: acceleration t: time
Kinematic Equation (Find final velocity, given initial velocity, acceleration, and displacement)	$\vec{v}_f^2 = \vec{v}_i^2 + 2\vec{a}(\Delta x)$	v_f : final velocity v_i : initial velocity a: acceleration Δx : displacement
Pythagorean Theorem	$C = \sqrt{A^2 + B^2}$	C: length of hypotenuse of right triangle A,B: lengths of other sides of right triangle