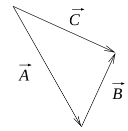
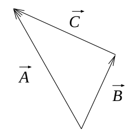
$\Delta x = x_f - x_i$	for any scalar/vector in place of x
$\vec{d}_{\text{net}} = \vec{d}_1 + \vec{d}_2$	Knight's version for vector displacement
$\Delta\vec{x} = \vec{x}_f - \vec{x}_i$	Carl's version for vector displacement
$v_x = \frac{\Delta x}{\Delta t}$	definition of 1-D (instantaneous) velocity, take a slope of $x(t)$
$a_x = \frac{\Delta v_x}{\Delta t}$	definition of acceleration, take a slope of $v_x(t)$
$\Delta x = v_x \Delta t \leftrightarrow A = hw$	displacement as area under $v_x(t)$ curve
$\Delta v = a_x \Delta t \leftrightarrow A = hw$	change in v_x as area under $a_x(t)$ curve
$\Delta x = (v_x)_i \Delta t + \frac{1}{2}\Delta v_x \Delta t$	displacement as area under a linear $v_x(t)$ curve
$x_f = x_i + v_x \Delta t$	kinematic formula for constant velocity
$y = mx + b$	high school formula for a straight line
$x_f = x_i + (v_x)_i \Delta t + \frac{1}{2}a_x(\Delta t)^2$	kinematic formula for displacement with constant acceleration
$(v_x)_f = (v_x)_i + a_x \Delta t$	kinematic formula for velocity with constant acceleration
$(v_x)_f^2 = (v_x)_i^2 + 2a_x \Delta x$	the "no-time" formula for constant acceleration
$a_y = -g = -9.80\,\text{m/s}^2$	free-fall acceleration due to gravity
$\sin\theta = \frac{\text{opps}}{\text{hyp}}$, $\cos\theta = \frac{\text{adj}}{\text{hyp}}$ $\tan\theta = \frac{\text{opps}}{\text{adj}}$	high school trig formulas
$(\text{hyp})^2 = (\text{adj})^2 + (\text{opps})^2$	Pythagoras' theorem (right angle triangles)
$c^2 = a^2 + b^2 - 2ab\cos(\angle C)$	law of cosines for side c opposite $\angle C$
$\vec{v} = \frac{\vec{d}}{\Delta t} = \frac{\Delta\vec{x}}{\Delta t}$	definition of velocity in 2 or more dimensions in terms of displacement vector $\vec{d}$ or $\Delta\vec{x}$
$\vec{a} = \frac{\Delta\vec{v}}{\Delta t}$	definition of acceleration in 2 or more dimensions



$\vec{C} = \vec{A} + \vec{B}$



$\vec{C} = \vec{A} - \vec{B}$

$\vec{A} = \vec{A}_x + \vec{A}_y$	decomposing a vector into components
$\lvert\vec{A}\rvert \equiv$ mag. or length of $\vec{A}$	quantity is always positive, sometimes just called A
$\vec{A} = \vec{A}_{xR} + \vec{A}_{yR}$	decomposing a vector into ramp components
$a_{xR} = \pm g\sin\theta$	acceleration of free object on a ramp
$\Delta y_R = v_{yR} = a_{yR} = 0$	no motion in y_R direction
$\vec{v}_{AC} = \vec{v}_{AB} + \vec{v}_{BC}$	subscript rule for relative velocities (Galilean transformation)
$(v_x)_i = \lvert\vec{v}_i\rvert\cos\theta$ $(v_y)_i = \lvert\vec{v}_i\rvert\sin\theta$	initial velocity components for a launched projectile
$x_f = x_i + (v_x)_i \Delta t$	projectile, uniform x-motion
$(v_x)_f = (v_x)_i$	projectile, constant v_x, $a_x = 0$
$y_f = y_i + (v_y)_i \Delta t - \frac{1}{2}g(\Delta t)^2$	projectile, y-displacement, $a_y = -g$
$(v_y)_f = (v_y)_i - g\Delta t$	projectile, decreasing v_y
$f = \frac{1}{T}$	relationship between frequency and period
$v = \frac{2\pi r}{T} = 2\pi r f$	orbital *speed* (velocity changes)
$\vec{a} = \left(\frac{v^2}{r}, \text{toward centre}\right)$	centripetal acceleration
$\vec{F}_{\text{net}} = \vec{0} \Rightarrow \vec{v}$ is constant	Newton's 1st law, constant may or may not be 0
$\vec{v}$ is constant $\Rightarrow \vec{F}_{\text{net}} = \vec{0}$	Newton's 1st law stated in *converse* form
$\vec{a} = \frac{\vec{F}_{\text{net}}}{m}$ or $\vec{F}_{\text{net}} = m\vec{a}$	Newton's 2nd law, definition of mass
$\vec{F}(\text{B on A}) = -\vec{F}(\text{A on B})$	Newton's 3rd law
$\vec{F}_{\text{net}} = \vec{F}_1 + \vec{F}_2 + \ldots = \Sigma\vec{F}_i$	forces sum to produce net force

These formulas are for *magnitudes* of forces. You need to consider the details of the problem to get the directions and eventually the correct signs in equations like $F_{x,\text{net}} = F_{x1} + F_{x2} + \ldots$

$w_{\text{apparent}} = m(g + a_y)$	apparent weight
$n = w_{yR} = mg\cos\theta$	magnitude of normal force for a ramp
$f_{\text{s,max}} = \mu_s n$	magnitude of maximum static friction
$f_k = \mu_k n$	magnitude of kinetic friction $\vec{f}_k$ is opposite to direction of $\vec{v}$
$f_r = \mu_r n$	rolling friction
$D = \frac{1}{2} C_D \rho A v^2$	empircal law for drag force in air