Formula Sheet

$v = v_0 + at,$

$x - x_0 = v_0 t + \frac{1}{2} a t^2,$

$v^2 = v_0^2 + 2a(x - x_0),$

$x - x_0 = \frac{1}{2}(v + v_0)t,$

$\vec{v}_0 = v_{0x}\hat{\imath} + v_{0y}\hat{\jmath},$

$v_{0x} = \frac{x - x_0}{\Delta t},$

$x - x_0 = (v_0 \cos\theta_0)t,$

$y - y_0 = (v_0 \sin\theta_0)t - \frac{1}{2} g t^2,$

$v_y = v_0 \sin\theta_0 - gt,$

$v_y^2 = (v_0 \sin\theta_0)^2 - 2g(y - y_0),$

$R = x - x_0,$

$R = \frac{v_0^2}{g} \sin 2\theta_0,$

$a = \frac{v^2}{T},$

$T = \frac{2\pi r}{v},$

$P = \frac{dE}{dt},$

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$