

Formula Sheet (2nd Midterm)

Formulas	Variables	Variables continued & Constants	Picture (Visualization)
example $\Delta x \equiv x_f - x_i$	Δx : displacement x_f : final position	x_i : initial position	
$\sum \vec{F} = m\vec{a}$			
$F_g = G \frac{m_1 m_2}{r^2}$			
$w = mg$			
$\vec{F}_{12} = -\vec{F}_{21}$			
$f_s \leq \mu_s n$			
$f_k = \mu_k n$			
$W = (F \cos \theta) \Delta x$			
$KE = \frac{1}{2} mv^2$			
$PE = mgy$			
$(KE_f + PE_f) - (KE_i + PE_i) = W$			
$\frac{1}{2} mv_i^2 + mgy_i = \frac{1}{2} mv_f^2 + mgy_f$			
$F = -kx$			
$PE_s = \frac{1}{2} kx^2$			
$\bar{P} = \frac{W}{\Delta t} = \frac{F\Delta x}{\Delta t} = F\bar{v}$			
$\vec{p} = m\vec{v}$			

$\vec{F}_{net} = \frac{\Delta\vec{p}}{\Delta t}$			
$\vec{I} = \vec{F}\Delta t$			
$\vec{F}\Delta t = \Delta\vec{p} = m\vec{v}_f - m\vec{v}_i$			
$m_1\vec{v}_{1i} + m_2\vec{v}_{2i} = m_1\vec{v}_{1f} + m_2\vec{v}_{2f}$			

Appendix

Surface area of sphere = $4\pi r^2$;

Area of circle = πr^2

M (mega) $\times 10^6$
k (kilo) $\times 10^3$
m (milli) $\times 10^{-3}$
 μ (micro) $\times 10^{-6}$