

Physics MidTerm 2 Cheat Sheet

by Jaco (brandenz1229) via cheatography.com/138824/cs/29649/

Chapter 6: Work and K	Kinetic Energy
m = mass	g = 9.8 m/s
F = Weight (N)	$F = m \cdot g$
s = distance	$K_{\mathbb{E}}$ = Kinetic Energy
W = Workdone	
Power = P (Watts)	x = cos y = sin
1 km = 1000m	1kg = 1000g
$\Delta K = Kf - Ki$	Friction = always negative
g = -9.8 (decre- asing)	g = 9.8 (normal)
a = g (gravitational acceleration)	Θ = Angle between F and s
= Component of F parallel to dl	v = velocity
W = ($\int P2$ to P1) F·dl	$W = F \mid \mid dI$
W = (∫P2 to P1) F⋅cosΘ⋅dl	$W = F \cdot s$ (Joules)
$Pav = \Delta W / \Delta t$	P = $\lim \Delta t > 0 (\Delta W / \Delta t) = dW / dt$
$V_f = V_i^2 + 2 \cdot a \cdot s$	P = (W/t)
Constant Speed : (a = 0)	F = force $P = F \cdot v$
Friction (opposite) = co	os(180°)
W _X = F (cosΘ)⋅s W _Y	= F (sinΘ)·s
$a = (Vf^2 - Vi^2) / (2 \cdot s)$	
$F_S = (1/2) \cdot m \cdot V_f^2 - (1/2)$	2)·m·Vi²
Wgrav = m⋅g⋅h	P = (W/t)
$KE = (1/2) \cdot m \cdot V^2$	PE = m·g·h

Chapter 7: Potential Energy, Energy Conservation	
Potential Energy = U, PE	$\Delta K = -\Delta U$ grav
K = Kinetic Energy	R = Radius
s = yf - yi	$U_{grav} = m \cdot g \cdot y$
$\Delta s = \Delta x \hat{i} + \Delta y \hat{j}$	cm = circular motion

Chapter 7: Potential Energy, Energy Conservation (cont)		
	k = constant of spring	
$PE = (1/2) \cdot k \cdot x^2$		
Wgrav = w- vector · Δs- vector	Diameter = 2 ⋅ Radius	
Wf = Work Done by Friction	if elastic KE = PE	
Wgrav = F × s	$W_{grav} = m \cdot g \cdot yi - m \cdot g \cdot yf$	
Ki + Ui = Kf + Uf	$(1/2)\cdot m\cdot Vi^2 + m\cdot g\cdot yi =$ $(1/2)\cdot m\cdot Vf^2 + m\cdot g\cdot yf$	
if gravity does work E = K + Ugrav	<pre>Wtotal = Kf - K i Wtotal = Wgrav + We 1 + Wother</pre>	
Wother + Ui - Uf = Kf - Ki arrange to Ki + Ui + Wot her = Kf + Uf	Work done on a spring $W = (1/2)KE \cdot Xf^2 - (1/2)KE \cdot Xi^2$ Work done by a spring $W = (1/2)KE \cdot Xi^2 - (1/2)KE \cdot Xf^2$	
$U_{\text{cm}} = m \cdot g \cdot R$	Elastic Potential Energy $Uel = (1/2) \cdot KE \cdot x^2$ Work Done by Elastic Force $Wel = (1/2) \cdot KE \cdot xi^2$ -	

 $(1/2)\cdot KE\cdot xf^2$

if elastic force does work, and mechanical

energy is conserved

Ki + Uel, i = Kf + Uel, f

Chapter 7: Potential En Conservation (cont)	nergy, Energy
Friction: Er	w of Conservation of nergy $\langle +\Delta U + \Delta U_{int} = 0 \rangle$
$F = F_X + F_Y + F_Z \qquad F_Z$ $F_X(x) = -m \cdot g$ $F_Y(y) = -m \cdot g$ $F_Z(z) = -m \cdot g$	$c = (1/2) \cdot K \cdot x^2$
Chapter 8: Momentum	Impulse Collisions
p = momentum	J = Impulse
m = mass	v = velocity
$P = m \cdot v (kg \cdot m/s)$	•
$F = dp / dt$ $J_{Y} = (\int tf \text{ to ti}) \Sigma Fy$ dt	$J = \Sigma F (tf - ti)$ $J = \Sigma F \cdot \Delta t$ $J = (\int tf to ti) \Sigma F dt$
Jy= $(Fav)y$ (tf - ti) Jy = Pfy - Piy Jy = $(m\cdot Vfy)$ - $(m\cdot V$ iy)	$J_X = (\int tf to ti) \Sigma Fx$ dt $J_X = (Fav)x (tf - ti)$ $J_X = Pfx - Pix$ $J_X = (m \cdot Vfx) -$
	(m·Vix)

J = (Pf - Pi) = {F}: Change in Momentum

2**)**f

Pi = Pf

(P1+P2)i = (P1+P

Assuming m1 and m2 don't change

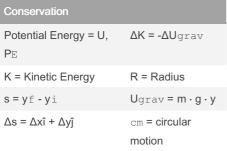
 $Vf = (m1 \cdot v1 + m2 \cdot v2) / (m1 + + m2)$

P = PA + PB = |PA + PB|

 $m1 \cdot v1 + m2 \cdot v2 =$

P1+P2 = constant

constant



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