Physics Test 2 Notes

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Momentum: $\vec{p} = m\vec{v}$ $< F_{Net} > = \frac{\Delta\vec{p}}{\Delta\vec{t}}$

Impulse: $\Delta\vec{p}$

Kinetic Energy: $KE = \frac{pv}{2}$ $KE = \frac{mv^2}{2}$ $\Delta KE = KE_2 - KE_1$

Work: $W = F\Delta x$

Power: $P = \frac{W}{\Delta t}$ $P = \vec{F} * \vec{v}$

Universal Gravitational Work and Potential Energy: $PE = -\frac{Gm_1m_2}{r^2}$

Gravitational Work and Potential Energy: $PE = mgy$

Spring Force: $PE = \frac{kx^2}{2}$

Friction: $F_{Friction} = -\mu_k$

Circular Motion:

Radial: $F_{net} = ma_{centripetal}$ $mg\cos\theta - F_n = ma_{centripetal}$ $a_{centripetal} = \frac{v^2}{r}$

Collision: $P_f = P_i$

Inelastic $V_1f = V_2f = V_f$ $m_{1i}v_{1i} + m_{2i}v_{2i} = m_{1f}v_{1f} + m_{2f}v_{2f}$
Final velocity of inelastic collision can be found through $v_f = \frac{m_1v_1 + m_2v_2}{m_1 + m_2}$

Elastic $KE_f = KE_i$
Center of mass can be found by using the same equation as final velocity for inelastic collisions $v_f = \frac{m_1v_1 + m_2v_2}{m_1 + m_2} = v_{centerofmass}$