Chapter 7

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- Kinetic energy associated with the motion of a particle of mass m and speed v is $k = \frac{1}{2}mv^2$
- Work is defined as the energy transferred to or from an object via a force acting on that object. Energy transferred to the object is positive work, and from the object, negative work.
- Work done on a particle by a constant force $\vec{F}$ during displacement $\vec{d}$ is $w = Fd\cos\theta = \vec{F}\vec{d}$
- work done by the gravitational force on a particle-like object of mass m is given as $W_g = mgd\cos\theta$ where θ is the angle between $\vec{F_g}$ and $\vec{d}$.
- The force $\vec{F_s}$ from a spring is $\vec{f_s} = -k\vec{d}$ (Hooke's Law)
- Work done by a spring is given as $W_s = \frac{1}{2}(kx_i^2 - kx_f^2)$