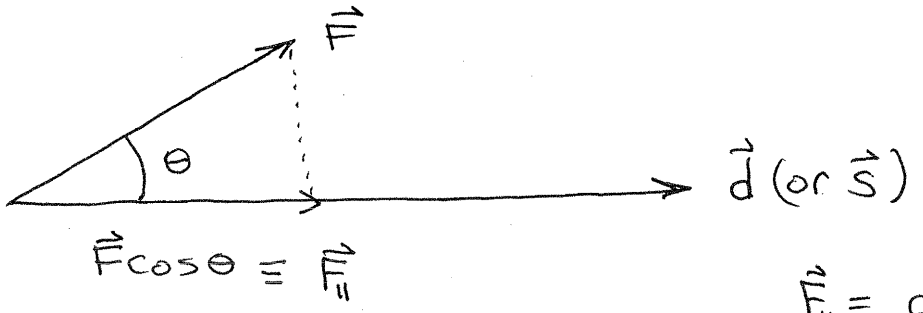
10/12/06

WORK - ENERGY



$\vec{F}_{\parallel} \equiv$ component of $\vec{F}$ Parallel to $\vec{d}$ (in the $\hat{d}$ direction)

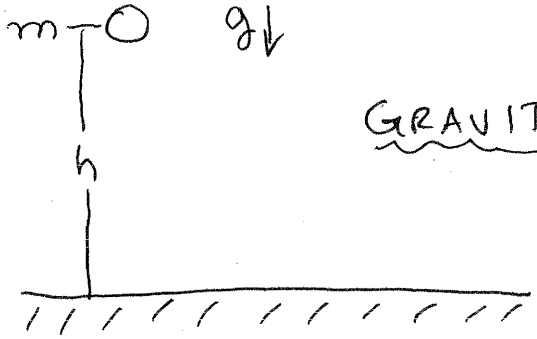
$$W \equiv |\vec{F}||\vec{d}|\cos\theta = Fd\cos\theta$$

$$W \equiv F_{\parallel} d \qquad F_{\parallel} = F\cos\theta$$

$$KE \equiv \frac{1}{2}mv^2$$ KINETIC ENERGY

WORK ENERGY THEOREM:

$$W_{net} = \Delta KE = \frac{1}{2}mv_f^2 - \frac{1}{2}mv_i^2 = \frac{1}{2}m(v_f^2 - v_i^2)$$



GRAVITATIONAL POTENTIAL ENERGY

$PE = mgh \equiv$ WORK I MUST DO TO RAISE m TO HEIGHT h

$$W_{GRAVITY} = -\Delta PE$$

$$\Delta PE = PE_f - PE_i = mg(h_f - h_i) = -W_{gravity}$$

$$W_{GRAVITY} = mg(h_i - h_f) = PE_i - PE_f = -\Delta PE$$