Work Done by (or Against) Gravity

PH III

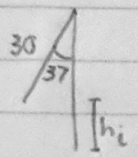
$E = KE + PE$

Conservation of energy - accounting procedures

$P = Fs/t = Fv$

$E_i = E_f$

$KE_i + PE_{g_i} = KE_f + PE_{g_f}$



$mgh_i = \frac{1}{2}mv_f^2 + mgh_f$ ($h_f = 0$)

$gh_i = \frac{1}{2}v_f^2$

$PE_{g_{max}} = mgL(1-\cos\theta)$

$h_i = 30 - 30\cos 37 = L - L\cos\theta$

$v_f = \sqrt{2(9.8)(30-30\cos 37)} = 10.9 \text{ m/s}$

$W = \int F(x)\,dx$

Force due to a spring

Hooke's Law

$\vec{F} = -k\vec{x}$

↑ spring constant N/m