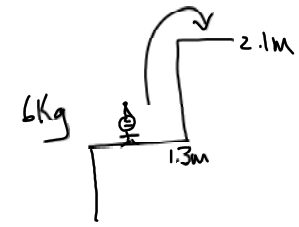
CP - Dec. 9

CLT - Describe the relationship between KE and PE in several situations and how Energy is conserved.

Bernice



$\Delta h = .8m$

Force = weight = $6Kg(9.8) = 58.8N$

Work = $Fd = 58.8N(.8m) = \boxed{47.04Nm}$

How much more energy was just stored in it? $\boxed{47.04Nm}$

2. Sherry $m = 85\ Kg$ $KE = \frac{1}{2}mv^2$

$= \frac{1}{2}(85Kg)(\ \ )^2$

$v = \frac{d}{t} = \frac{1.8\ Km}{14\ min}\left(\frac{1000\ m}{1\ Km}\right)\left(\frac{1\ min}{60\ s}\right) = 2.14\frac{m}{s}$

$\frac{1}{2}(85Kg)\left(\frac{2.14m}{s}\right)^2$

$\frac{1}{2}(85Kg)\frac{4.6\ m^2}{s^2} = \boxed{195.15Nm}$

3. Mike

$m = 1400\ Kg$, $F = 2100N$, $d = 509\ m$ → Find acc

V_f

$V_0 = 0$ $\quad V_f^2 = V_0^2 + 2ad$

$F = ma$ $\quad \frac{F}{m} = a = \frac{2100N}{1400Kg} = 1.5\frac{m}{s^2}$

d	V_f
V_0	
a	

$V_f^2 = 2ad = 2\left(1.5\frac{m}{s^2}\right)(509m)$

$V_f^2 = 1527\frac{m^2}{s^2}$

$\boxed{V_f = 39.1\frac{m}{s}}$

David

$PE = KE$

$\cancel{m}gh = \frac{1}{2}\cancel{m}v^2$

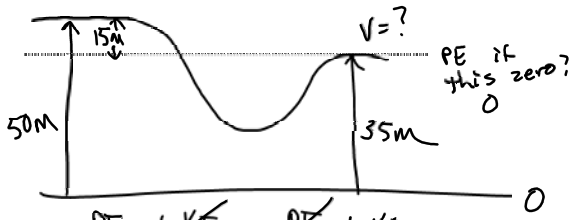
$gh = \frac{1}{2}v^2$

$2gh = v^2$

$v^2 = 2\left(9.8\frac{m}{s^2}\right)(100m) = 1960\frac{m^2}{s^2}$

$v = 44.3\frac{m}{s}$

Dan



$PE_1 + \cancel{KE_1} = \cancel{PE_2} + KE_2$

$\cancel{m}gh = \frac{1}{2}\cancel{m}v^2$

$2gh = v^2$

$2(9.8)(15m) = v^2$

$294\frac{m^2}{s^2} = v^2$

$v = 17.15\frac{m}{s}$

Roller coaster Toy