November-02-10
3:11 PM

#7 $\Delta E_{hm} + \Delta E_{hw} = 0$

$m \Delta t C_m + m \Delta t C_w = 0$

$\frac{m \Delta t C_m}{m \Delta t} = \frac{- m \Delta t C_w}{m \Delta t}$ ← water / ← metal

$= \frac{-(.265\,kg)(33-26)(4.184\times10^3)}{(.352\,kg)(33-215)}$

$= \boxed{121 \frac{J}{kg^C}}$

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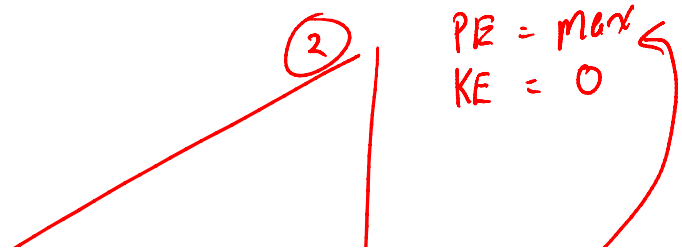
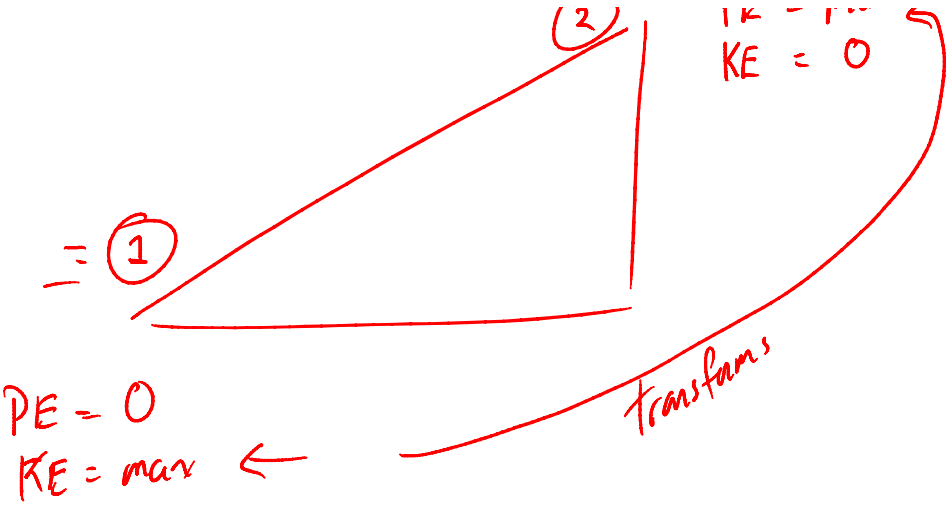
law of Conservation of Energy

Energy is neither created or destroyed, it is only transformed

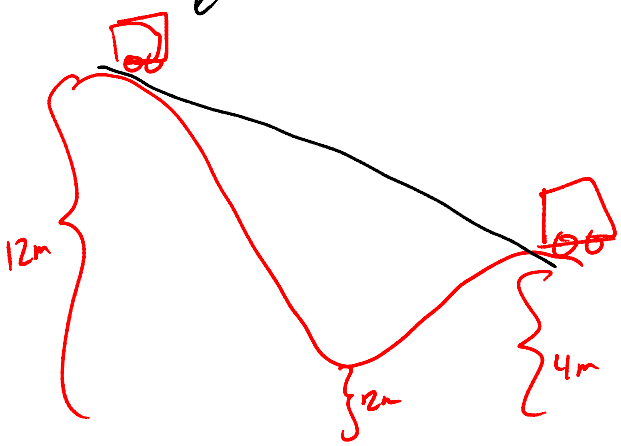
$\Delta E_K + \Delta E_P = 0$

$\frac{1}{2}mv_f^2 - \frac{1}{2}mv_i^2 + mgh_f - mgh_i = 0$





#8 pg 227 $v_i = 0$



$$\Delta PE + \Delta E_k = 0$$

$$(mgh_f - mgh_i) + \left(\tfrac{1}{2}mv_f^2 - \tfrac{1}{2}mv_i^2\right) = 0$$

$$gh_f - gh_i + \tfrac{1}{2}v_f^2 - \tfrac{1}{2}v_i^2 = 0$$

$$\tfrac{1}{2}v_f^2 = -(gh_f - gh_i)$$

$$= -((9.8)(4m) - (9.8)(12m))$$

$$2\left(\tfrac{1}{2}v_f^2 = 78.4\right)$$

$$v_f^2 = 2(78.4)$$

$$v_f = \sqrt{\quad}$$

$$v_f = 12.5 \frac{m}{s}$$

Pg 225 - 230 odd Q's

1 - 13

1)

1-13