Course 565/665 Lecturer Prof. Cavagnero
Day 2.5.04 Date 9:55 am
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$W_{tot} = W_L \cdot W_R$ Case A: $W_L = \frac{4!}{2!\,2!}$; $W_R = \frac{4!}{2!\,2!}$

$W_{tot} = 36$

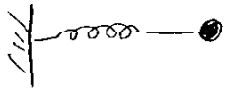
Case B: $W_L = \frac{4!}{3!\,1!}$ $W_R = \frac{4!}{1!\,3!}$ $W_{tot} = 16$

Case C: $W_L = \frac{4!}{4!}$ $W_R = \frac{4!}{4!}$ $W_{tot} = 1$

Chapter 3: Work, Forces, Heat

Force: $F = m \cdot a$

$V = \frac{dx}{dt}$, $a = \frac{dv}{dt} = \frac{d^2x}{dt^2}$



① F_{appl}: pull

② F_{attr}: attraction

$F_① = -F_②$

work ↑

$\delta w = F_{appl}\, dx$.

$F_{attr.} = -kx$ Hooke's Law

↓ spring constant.

2nd of 3.

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$\delta W = F_{appl.} \cdot dx = - F_{attr.} dx$

↓ performed on the system

Integrat on both sides: $W = -\int_{x_1}^{x_2} F_{attr.} dx = \frac{1}{2} k x^2$

↓ for total applied force

> 0

$W_{appl} \equiv W_{done\ on\ system} > 0$

$\therefore W_{done\ by\ system} < 0$

Work (W) is a form of energy: principle of energy conservation:

$W_{\circlearrowright} = W_{AB} + W_{BA} = W_{AB} - W_{AB} = 0$

↑ energy.

3rd of 3.