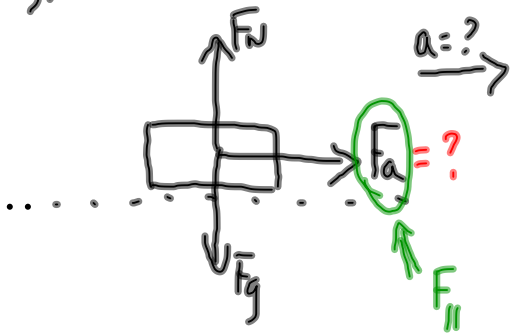
From HW

PP/221

3.



$W = 0.0230\,J$

$\Delta d = 10.0\,cm$ → $F_a = ?$

$m = 0.100\,kg$

$F_{||} = ma$

$W = F_{||}\Delta d$

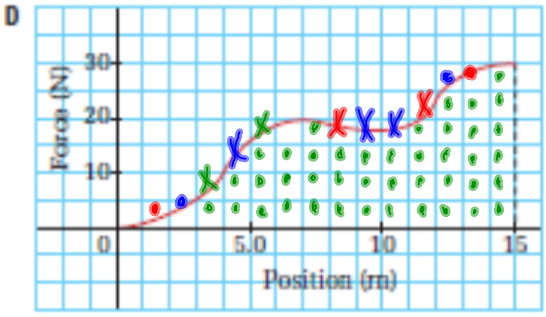
$W = ma\Delta d$

$a = \frac{W}{m\Delta d}$

$a = \frac{0.0230\,J}{(0.100\,kg)(0.100\,m)}$

$a = 2.3\,m/s^2$

D



5N × 1m = 5J

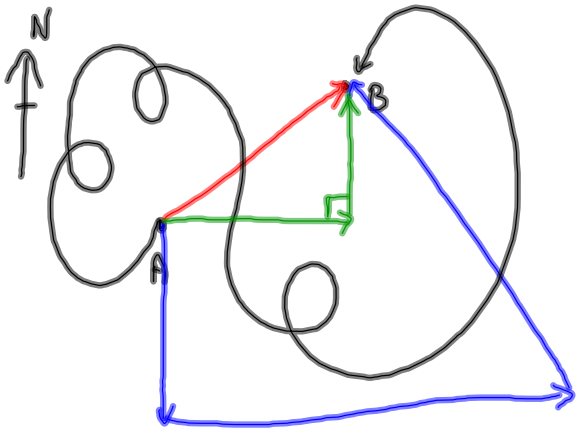
42 full squares

2 squares

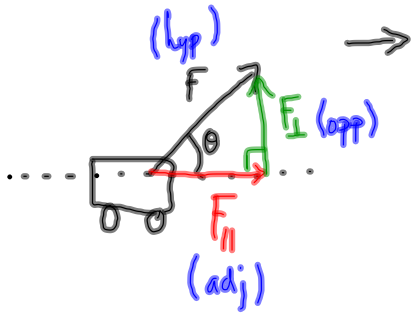
about 48 full squares

so 48 × 5J = ~~275J~~ 240J

Consider going from A → B.



What is the work done by a force, F, acting on the handle of a wagon that is at an angle, θ, to the horizontal?



$\cos\theta = \frac{adj}{hyp}$

$\cos\theta = \frac{F_{\parallel}}{F}$

$F_{\parallel} = F\cos\theta$

Recall: $W = F_{\parallel}\Delta d$

$W = F\cos\theta\,\Delta d$

$W = F\Delta d\cos\theta$

If $\theta = 0°$, $\cos 0° = 1$, W will a maximum value

If $\theta = 90°$, $\cos 90° = 0$, W will be ZERO!

If $\theta = 180°$, $\cos 180° = -1$, W will be NEGATIVE!

Nov 18-2:11 PM

MP/233

$F_g = 6.50 \times 10^2 N$

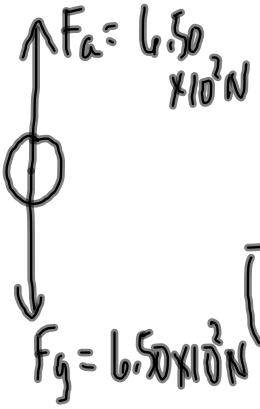
$h = 0.55 m$

a) W = ? (lifting)

b) W = ? (lowering)

a) Lifting

Since F_a is || the vel.



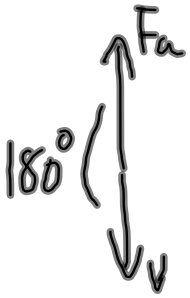
$W = F_{||} \Delta d$

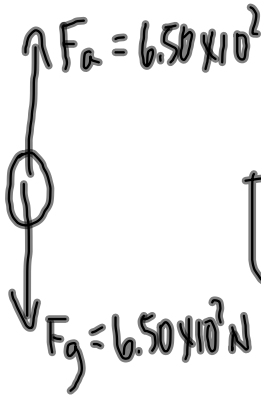
$W = (6.50 \times 10^2 N)(0.55 m)$

$W = 3.6 \times 10^2 J$

+ work.

b) lowering:





$W = F \Delta d \cos\theta$

$W = (6.50 \times 10^2 N)(0.55 m) \cos 180^\circ$

$W = -3.6 \times 10^2 J$

− work

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