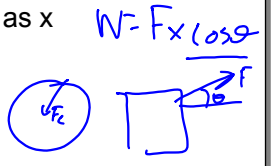
Chapter 6 Review- Work and Energy

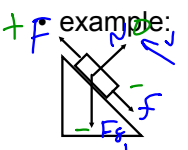
WORK

- F is in same direction as x
- F ⊥ x then W =0!
- F_c CANNOT do work
- F opposite to x = -W

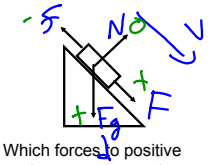


Work cont....

- constant v --> net work = 0 by ALL forces
- +a = + W and -a = -W
- example:



Which forces do positive work or negative work as it moves UP the ramp?



Which forces do positive work or negative work as it moves DOWN the ramp?

Power

= Energy/time

= W/t = ΔK/t = Δmgh/t = Fv

Conservative Energy

- Energy that you can get back
- can be + or -

1) KE = motion = $1/2mv^2$

2) U_g = position = mgh

Energy Conservation

Decrease in one energy = increase in other

$mgh = \frac{1}{2}mv^2$

$\Delta U_g = -\Delta KE$

remember it is a CHANGE but many times either final or initial is 0*

Work Energy Theorem

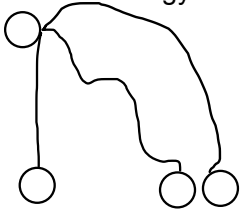
Doing work CHANGES energy

- $W + KE_o + U_{go} = KE_f + U_{gf} + fx + Rx$

OR

- $W - fx - Rx = \Delta U_g + \Delta KE$

Remember PATH DOES NOT MATTER for energy



$E_o = E_f$

so...same v at bottom if same v at top