Last Times

Newton Laws

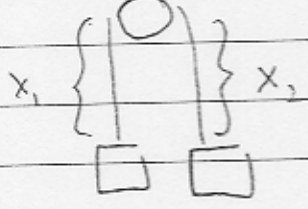
① For every object which can move (a free body) Draw all forces; Be sure to identify all equal and opposite forces; Write down $\vec{F}_{net} = m\vec{a}$ in all directions

② Often there are constraints amongst the coordinates which relates the accelerations of different bodies

- One constraint per tension or normal force

equations of constraint

Ex.



Length of rope

$$x_1 + x_2 = L$$

$$\frac{d^2x_1}{dt^2} + \frac{d^2x_2}{dt^2} = 0$$

$$a_1 + a_2 = 0 \Rightarrow a_1 = -a_2$$

if one moves u the other moves do

③ If you have written all Newton Laws and all equations of constraint, you should be able to determine all accelerations and all forces of constaint (i.e. tension & normal forces)

Friction

Static Friction: $|\vec{F}_s| < |\mu_s \vec{N}|$ and opposes the motio