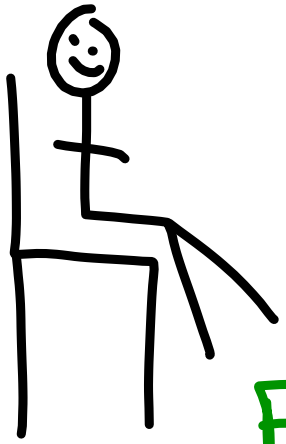
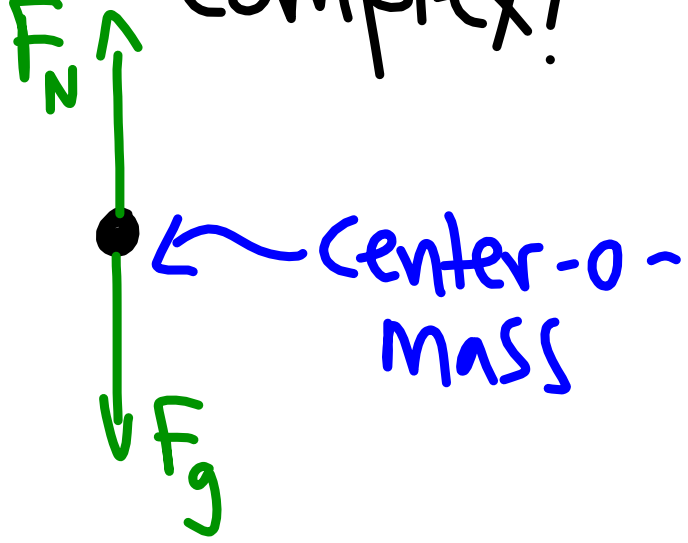
# Forces - Represent with vectors

ex: you



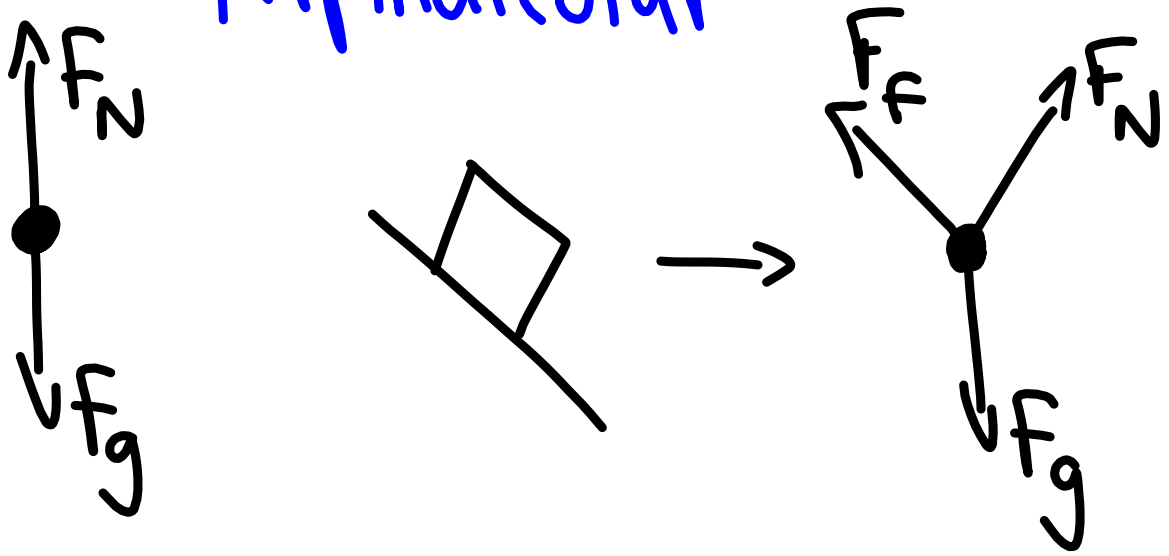
this is too Complex!

we'll use this:



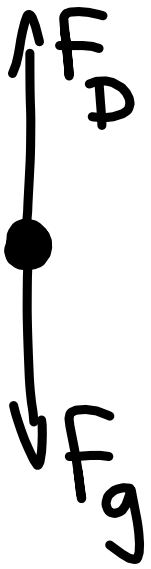
$F_N$ = Normal force: a force exerted by an object that counters gravity.

Perpindicular



Friction – Force that opposes motion

ex: free fall



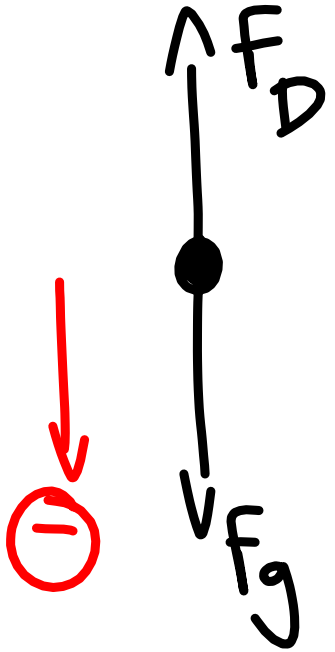
$$F_D = \frac{1}{2}\rho A C_D V^2$$

$V^2$ → velocity

$C_D$ → Coefficient-o-drag

$A$ → Area of object

$\rho$ rho → density of air




$$F_D = F_g$$

$$\frac{1}{2}\rho A C_D v^2 = mg$$

→ g due to gravity $\left(9.81 \frac{m}{s^2}\right)$

$$v^2 = \frac{2mg}{\rho A C_D}$$

$$v = \sqrt{\frac{2mg}{\rho A C_D}}$$

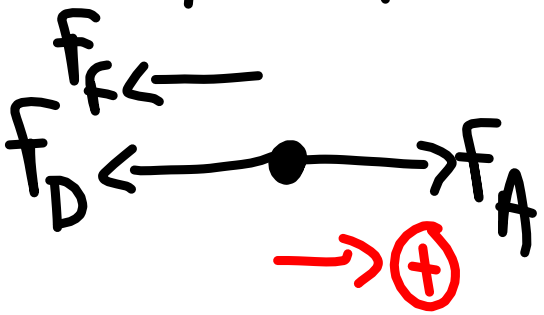
# Summation of forces

$$\sum \vec{F} = F_D - F_g = 0$$

$$F_D = F_g \checkmark$$

$$F_F = \mu F_N$$

ex: car




$$\sum \vec{F} = F_A - F_D - f_F = ma$$