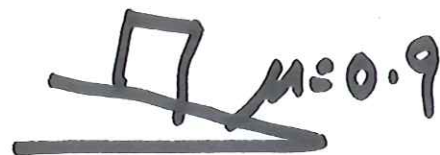


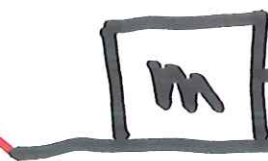
NYU Physics I — 2016-10-20

- Agenda:
- Qs
 - a bit more on SHO
 - stress & strain
 - exam 3.

$$F = \mu mg \cos \theta$$



→ve



① sliding.

check:
 $a > 0$?

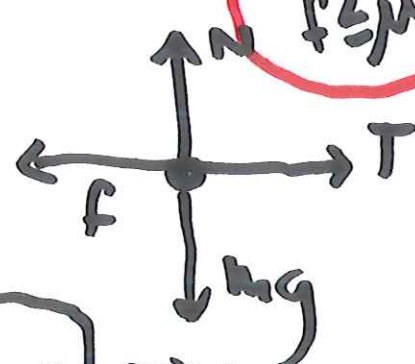


$$f = \mu N$$
$$= \mu mg$$

$$a = \frac{T - \mu mg}{m}$$

② static

check:
 $f \leq \mu N$?



$$|f| \leq |T| \quad a = 0$$

"static" means
 $\vec{a} = \vec{0}$ &...

"Simple harmonic oscillator:"

$$\frac{d^2x}{dt^2} + \omega^2 x = 0$$

ω omega Ω

$$\omega^2 = \frac{k}{m}$$

$$\omega^2 = \frac{g}{l}$$

~~$$\frac{d^2x}{dt^2} + \frac{dx}{dt} + \omega^2 x = 0$$~~

solution

$$x = A \cos \omega t + B \sin \omega t$$

@ time $t=0$ there is same

reading

initial position $x(0) = A$

velocity $v(0) = \omega B$

$$x = X \cos(\omega t + \phi)$$

$$x(t) = \underline{z_0} e^{-i\omega t} + \underline{z_0^*} e^{+i\omega t}$$