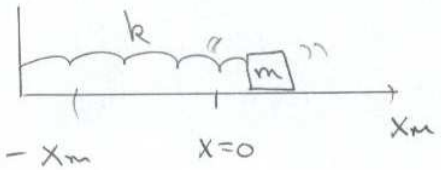
Let's go back to our Simple Harmonic Oscillator (SHO):



we found: $x(t) = x_m \cos(\omega t + \phi)$,

$\omega = \sqrt{\frac{k}{m}}$

so $T = \frac{2\pi}{\omega}$,

$$T = 2\pi\sqrt{\frac{m}{k}}$$

& $f = \frac{1}{T}$ gives us

$$f = \frac{1}{2\pi}\sqrt{\frac{k}{m}}$$

* This is another property of a SHO:

f is INDEPENDENT of _____.

So now we have ANOTHER method to find an objects inertial mass.

Measure T & k to find m:

$T = 2\pi\sqrt{\frac{m}{k}}$,

so $m = \frac{T^2}{4\pi^2} k$