Phys 2110-4 2/8/13

Note Title 2/8/2013

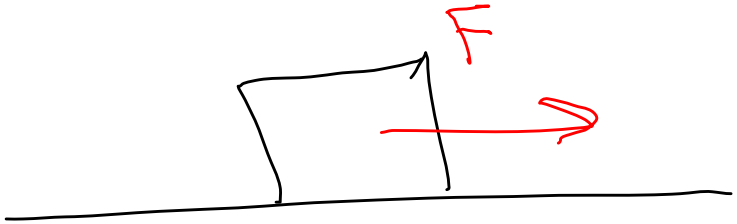
Dynamics Forces

What changes motion? $\vec{a}$

Newton's 1st Law: Motion is maintained, unless (Velocity)

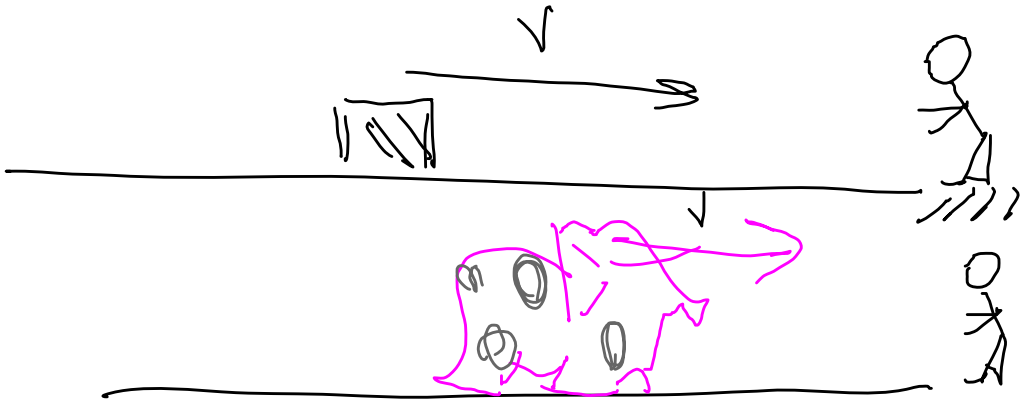
a force acts on the object

How do forces change motion?



$\vec{F}_{net}$

$\vec{a} \propto \vec{F}_{net}$



Acceleration depends on property of object.

"Inertia" "Bulkiness"

Mass, m.

Mass is measured in kg.

$\vec{a} \propto \frac{1}{m}$

$\vec{a} \propto \vec{F}_{net}$

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$\vec{a} \propto \frac{\vec{F}_{net}}{m}$

multiply by m

$\vec{F}_{net} = m\vec{a}$

Newton's 2nd law.

Units?

Units?

$$F = ma$$

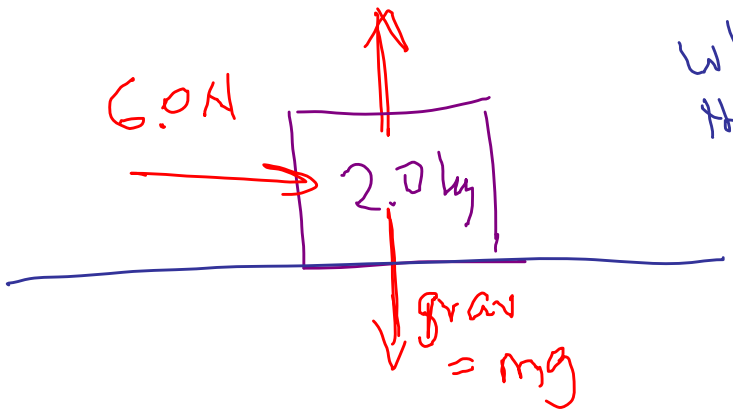
$$= \text{kg}\,\frac{\text{m}}{\text{s}^2}$$

$\text{kg}\,\frac{\text{m}}{\text{s}^2}$

Newton, N

newton

1 pound $= 4.448\ \text{N}$



What's the accel.?

$$F_x = ma_x$$

$$a_x = \frac{F_x}{m} = \frac{6.0\ \text{N}}{(2.0\ \text{kg})} = 3.0\ \frac{\text{m}}{\text{s}^2}$$