$$a_s = \text{const.}$$

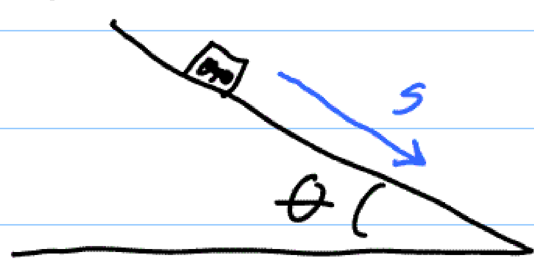
$$v_{f,s} = v_{i,s} + a_s t$$

$$s_f = s_i + v_{i,s} t + \frac{1}{2} a_s t^2$$

§2.6 - Free Fall

Nothing To Add $\equiv$ NTA

§2.7 - Inclined Plane



frictionless

a_s?

$\theta = 0 \qquad a_s = 0$

$\theta = \frac{\pi}{2}$ radians $\qquad a_s = g$

Diversion: radian is nature's preferred unit

MP - radians exclusively

function $f(\theta)$

$$a_s = f(\theta)$$

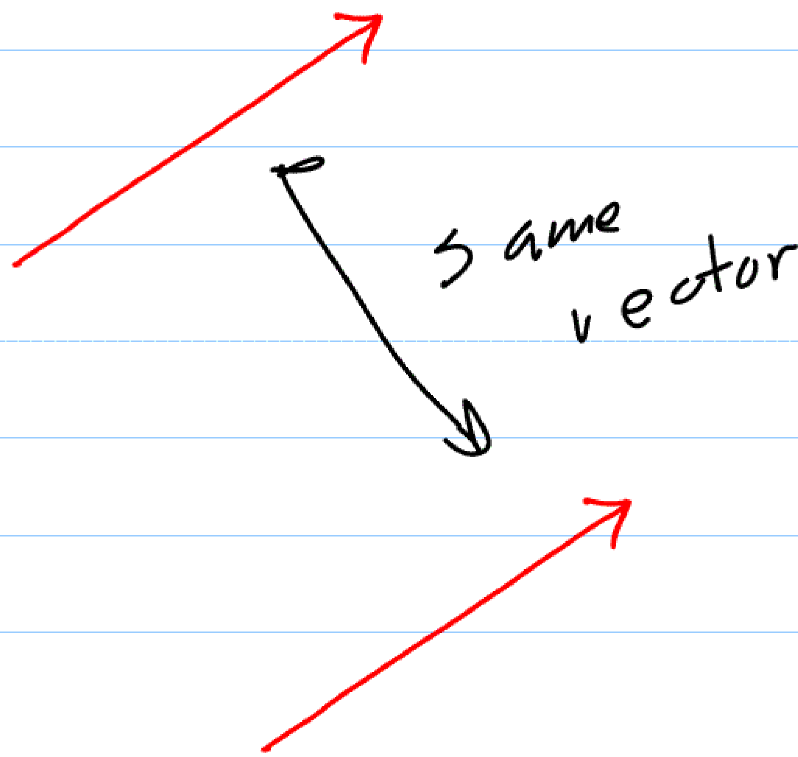
simplest possible:

$$a_s = g \sin(\theta)$$

correct. Chapt 5 we'll prove it

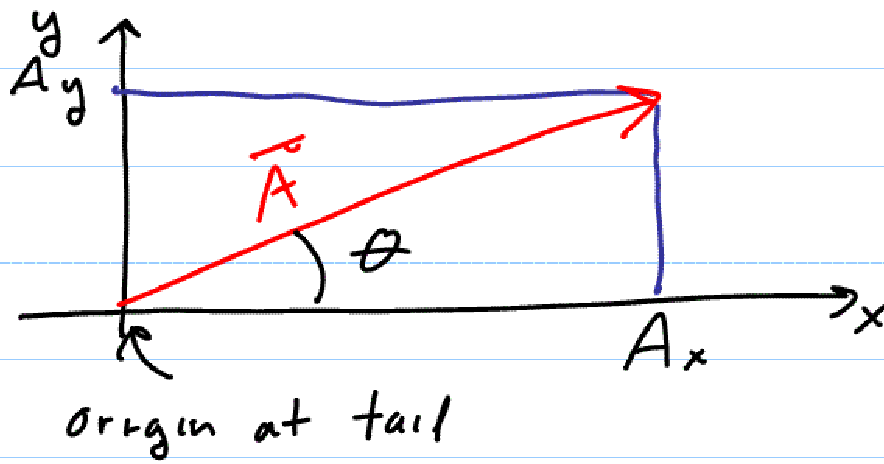
CHAPT 3 - VECTOR & COORD SYSTEMS

Specified: { magnitude
direction



$\vec{A} = (\underline{\text{magnitude}}, \text{direction})$

Cartesian Components



$\vec{A} = (A_x, A_y, A_z)$

Notation: $\hat{\imath}, \hat{\jmath}, \hat{k}$

$i = |\hat{\imath}| = |\hat{\jmath}| = |\hat{k}| = 1$

Point +x, +y, +z directions
respectively

CHAPTER 4
FORCES &
MOTION

Largely descriptive

§4.1- Force

long range:
gravity;
electric force
↑

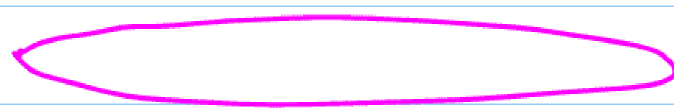
contact')

§ 4.2 Catalog NTA

§ 4.3 – Identifying

defer

§ 4.4 – What Forces Do

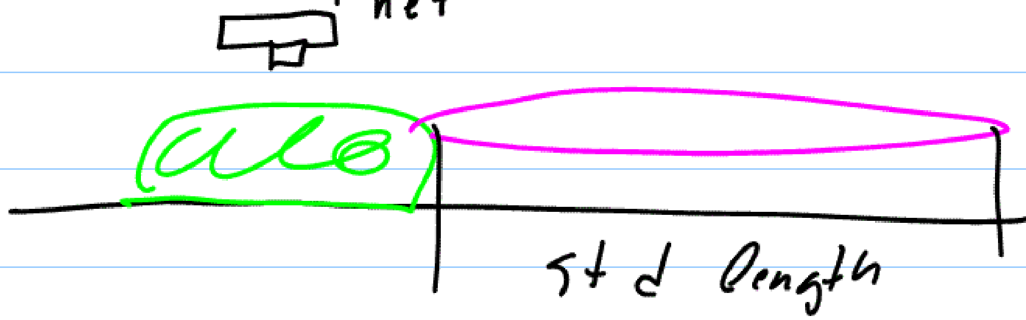


| stretch to "standard length" |

Feel "standard force F"

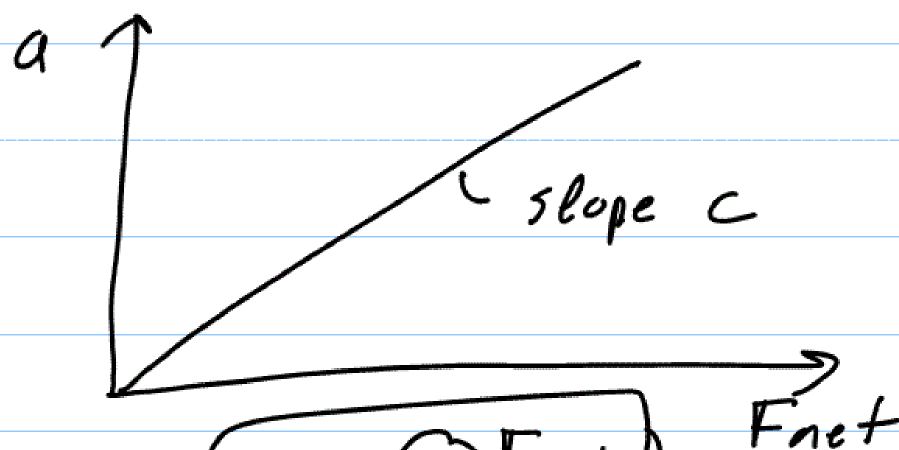
N rubber bands:

$$F_{net} = NF$$



measure a result: a_1

N bands! $a = N a_1$



$\rightarrow$ $a = c\,F_{net}$

Operational Def^n

mass $m = \frac{1}{C}$

$$\vec{a} = \frac{\vec{F}}{m}$$

Newton's 2nd Law

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