August 29

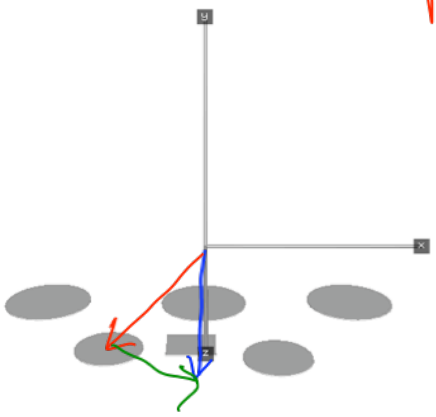
FIND YOUR NAME.

THIS IS YOUR NEW GROUP

Table that thought

My nose is at

<0.3, -0.2, 5.0>

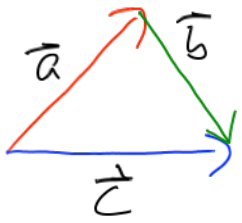


arrow(pos=vector(0,0,0), axis=vector(x,y,z), color=color.red)

blue vector from origin to my nose.

green vector from your table to my nose

Vector stuff



$\vec{a} + \vec{b} = \vec{c}$

$\vec{c} = \langle c_x, c_y, c_z \rangle$

$= \langle a_x + b_x, a_y + b_y, a_z + b_z \rangle$

$\vec{b} = \vec{c} - \vec{a}$

$\langle b_x, b_y, b_z \rangle = \langle c_x - a_x, c_y - a_y, c_z - a_z \rangle$

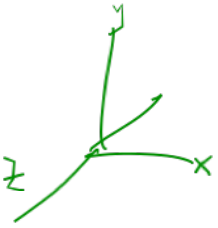
arrow(pos = vector(T_x, T_y, T_z), axis = vector($N_x - T_x, N_y - T_y, N_z - T_z$), color = color.green)

↑ base of vector

Vector: magnitude + direction

$\vec{a} = |\vec{a}|\,\hat{a}$

$\hat{a}$ unit vector



mag ↑ dir ↑

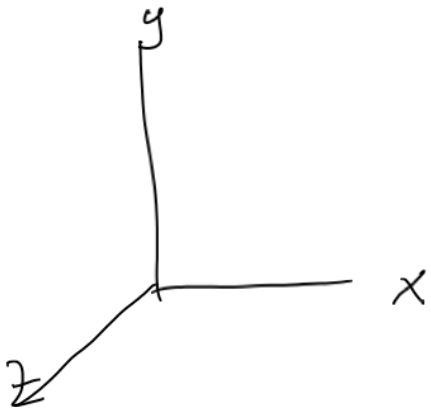
$\hat{a} = \dfrac{\vec{a}}{|\vec{a}|}$

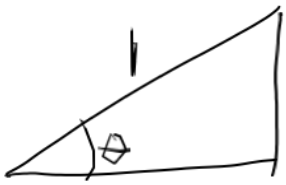
$3\vec{a} = \langle 3a_x, 3a_y, 3a_z \rangle$

$\hat{i} = \langle 1, 0, 0 \rangle$

$\hat{j} = \langle 0, 1, 0 \rangle$

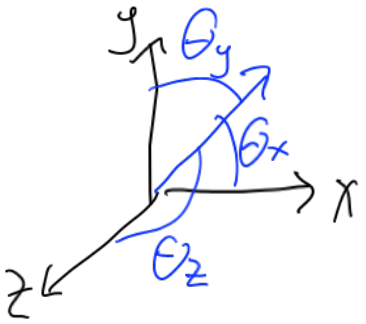
$\hat{k} = \langle 0, 0, 1 \rangle$





cos θ

$\cos\theta = \frac{adj}{hyp}$



$\hat{r} = \langle r_x, r_y, r_z \rangle$

$r_x = \cos\theta_x$