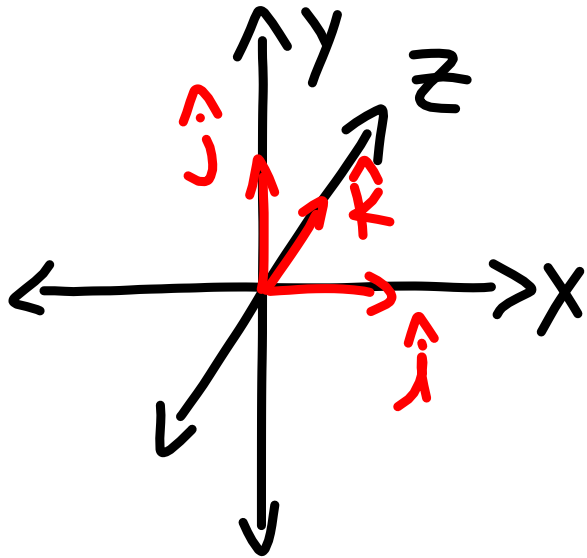


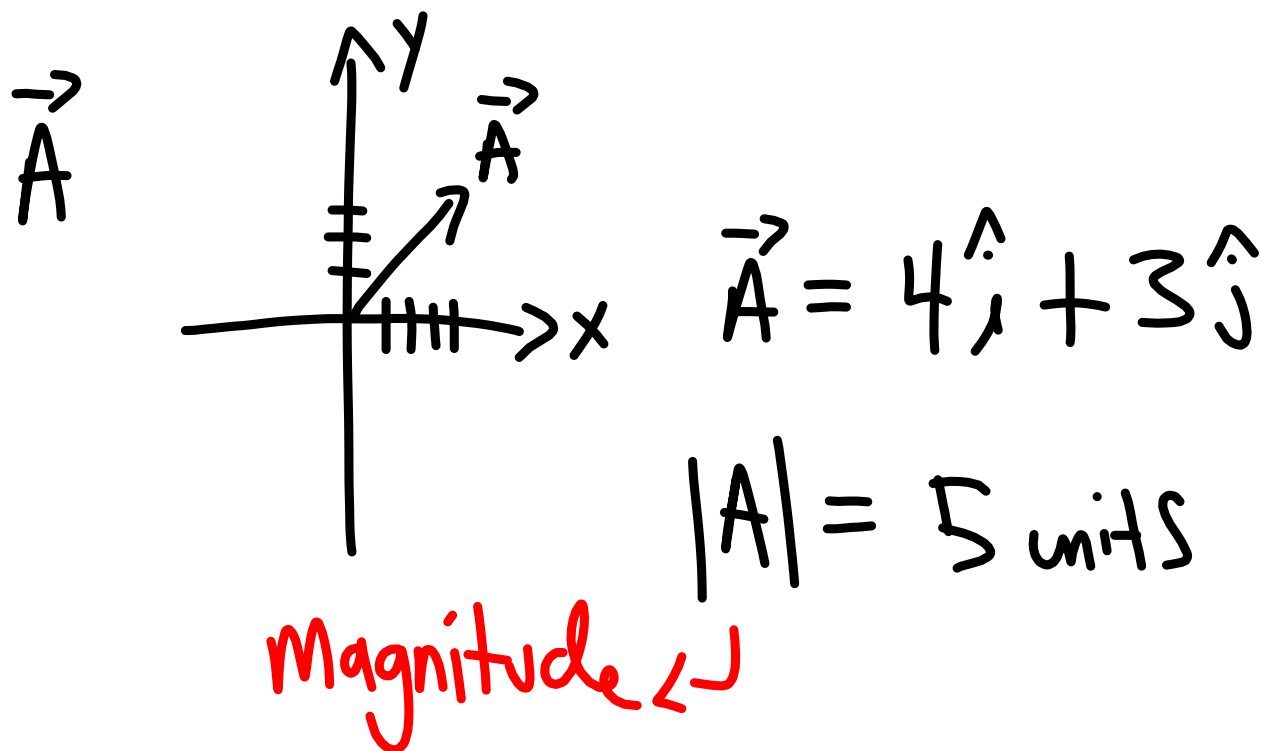
Component Notation

Unit vectors: magnitude = 1.0000....



$$\vec{A} = A_x \hat{i} + A_y \hat{j}$$

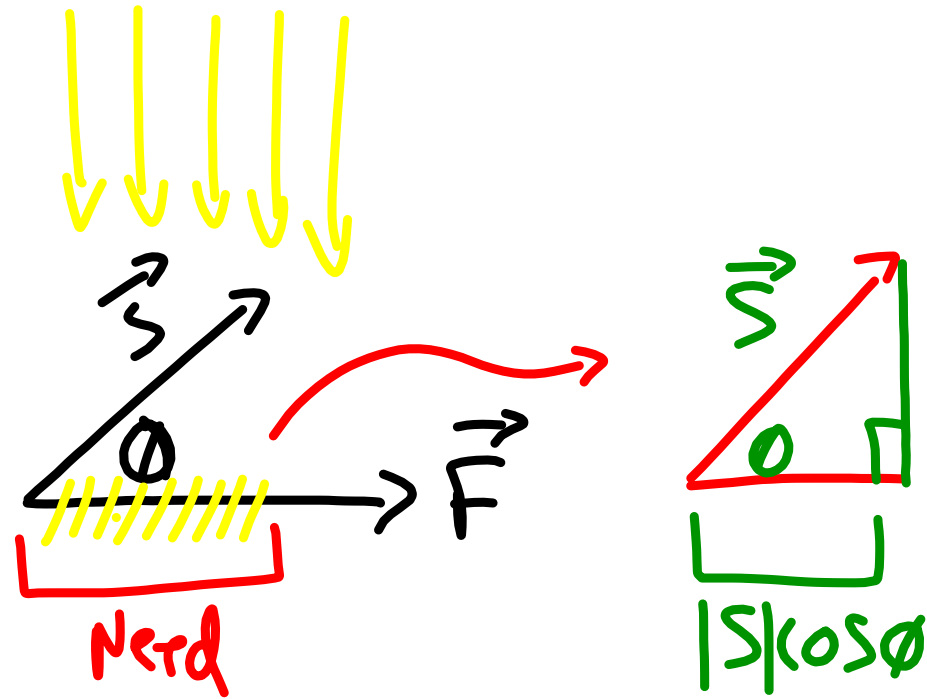
Component



Dot Product

$$\text{ex: } W = \vec{F} \cdot \vec{s}$$

work = force x displacement,
only in direction of motion



$$\vec{A} \cdot \vec{B} = |\vec{A}| |\vec{B}| \cos\theta$$

Returns a Scalar

Consider Unit vectors

$$\hat{i} \cdot \hat{i} = |\hat{i}| |\hat{i}| \cos(0^\circ) = 1$$

$$\hat{j} \cdot \hat{j} = 1$$

dot product

$$\hat{k} \cdot \hat{k} = 1$$

is

$$\hat{i} \cdot \hat{j} = |\hat{i}| |\hat{j}| \cos(90^\circ) = 0$$

Commutative

$$\hat{j} \cdot \hat{k} = 0$$

$$\hat{k} \cdot \hat{i} = 0$$