

Linear algebra 2 :

1). Calculate the Magnitude of the sum of two vectors:

$$\vec{a} = (0, 1, 1) \text{ and } \vec{b} = (2, -1, 0)$$

2). Calculate the unit vector along the direction of $\vec{a} + \vec{b}$.

3). Calculate the inner product of \vec{a} and \vec{b} : $\vec{a} \cdot \vec{b}$

4) Calculate the cross-product $\vec{a} \times \vec{b}$

5) An arbitrary vector \vec{v} ~~and~~ can always be represented

as the product $\vec{v} = v \hat{v}$, where v is the magnitude

of \vec{v} , and \hat{v} is a unit vector. Find this representation

for the vector $\vec{u} = \vec{a} + x \vec{b}$, where x is arbitrary real number.