

Quiz 2

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1. Normalize the vector $\vec{v} = \begin{bmatrix} 2 \\ 3 \\ -1 \end{bmatrix}$. That is, find a unit vector in the same direction as \vec{v} .

2. Define \vec{y} and \vec{u} as follows:

$$\vec{y} = \begin{bmatrix} -3 \\ 9 \end{bmatrix} \quad \vec{u} = \begin{bmatrix} 1 \\ 2 \end{bmatrix}$$

- (a) Write \vec{y} as the sum of two vectors, one of which is in $\text{Span}\{\vec{u}\}$ and the other is orthogonal to \vec{u} .

- (b) Now show how to verify that the two vectors from part a) are orthogonal.