1. True or False?

The vector from $(0, 2)$ to $(-1, 1)$ is equal to the vector from $(1, -1)$ to $(0, -2)$.

2. Which of the following vectors is the shortest?

(A) $\begin{pmatrix} 2 \\ -1 \\ 1 \end{pmatrix}$

(B) $\begin{pmatrix} -3 \\ 1 \\ 1 \end{pmatrix}$

(C) $\begin{pmatrix} 1 \\ 0 \\ -4 \end{pmatrix}$

3. True or False?

There is exactly one value of k such that the following two vectors in $\mathbb{R}^2$ are perpendicular.

$$\begin{pmatrix} k \\ 2 \end{pmatrix} \quad \begin{pmatrix} -1 \\ 5 \end{pmatrix}$$

3. True or False?

There is exactly one value of k such that the following two vectors in $\mathbb{R}^2$ are perpendicular.

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Follow-up. True or false? There exists a vector in $\mathbb{R}^2$ which is perpendicular to the vector

$$\begin{pmatrix} k \\ 2 \end{pmatrix}$$

for two or more distinct values of k.

4. True or False?

The set of vectors orthogonal to

$$\begin{pmatrix} 1 \\ 3 \\ -1 \end{pmatrix}$$

is a plane in $\mathbb{R}^3$.