Responses for the Reading Questions 7

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Vector Operations

1 Where have you seen vectors used before in other courses? How were they different?

I have seen vectors in Calculus class and the biggest difference between those two vectors are: 1. The vector form is different. $< x, y, z >$ is used as a coordinate in Euclidean space. 2. The vector (x, y, z) always has an initial position in the Euclidean space.

2 In words only, when are two vectors equal?

Two vectors are equal if and only if the magnitude and the direction are equal. Let A and B be vectors, and two vectors are equal if the resultant vector is same such that

$$A - B = C \tag{1}$$

$$B - A = C \tag{2}$$

3 Perform the following computation with vector operations

$$2\begin{bmatrix}1\\5\\0\end{bmatrix} + (-3)\begin{bmatrix}7\\6\\5\end{bmatrix} = \begin{bmatrix}2\\10\\0\end{bmatrix} - \begin{bmatrix}21\\18\\15\end{bmatrix} = \begin{bmatrix}-19\\-8\\-15\end{bmatrix}$$