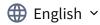
Linear dependency of a set of vectors

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Practice Assignment • 15 min



Your grade: 83.33%

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To pass you need at least 80%. We keep your highest score.

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1. In the lecture videos you saw that vectors are linearly dependent if it is possible to write one vector as a linear combination of the others. For example, the vectors ${\bf a}, {\bf b}$ and ${\bf c}$ are linearly dependent if ${\bf a}=q_1{\bf b}+q_2{\bf c}$ where q_1 and q_2 are scalars.

1/1 point

Are the following vectors linearly dependent?

$$\mathbf{a} = egin{bmatrix} 1 \\ 1 \end{bmatrix}$$
 and $\mathbf{b} = egin{bmatrix} 2 \\ 2 \end{bmatrix}$.

- Yes
- O No
 - **⊘** Correct

When there are two vectors we only need to check if one can be written as a scalar multiple of the other. We can see that the vectors are linearly dependent because ${f a}=\frac{1}{2}{f b}.$

2. We say that two vectors are linearly independent if they are *not* linearly dependent, that is, we cannot write one of the vectors as a linear combination of the others. Be careful not to mix the two definitions up!

1/1 point

Are the following vectors linearly independent?

$$\mathbf{a} = egin{bmatrix} 1 \\ 1 \end{bmatrix}$$
 and $\mathbf{b} = egin{bmatrix} 2 \\ 1 \end{bmatrix}$.