Diagonalisation and applications

Practice Assignment • 20 min

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English

Your grade: 100%

Your latest: **100%** • Your highest: **100%**

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

Next item

1. In this quiz you will diagonalise some matrices and apply this to simplify calculations. 1 / 1 point

Given the matrix $T = \begin{bmatrix} 6 & -1 \\ 2 & 3 \end{bmatrix}$ and change of basis matrix $C = \begin{bmatrix} 1 & 1 \\ 1 & 2 \end{bmatrix}$ (whose columns are eigenvectors of T), calculate the diagonal matrix $D = C^{-1}TC$.

- (●) $\begin{bmatrix} 5 & 0 \\ 0 & 4 \end{bmatrix}$
- ( ) $\begin{bmatrix} 6 & 0 \\ 0 & 3 \end{bmatrix}$
- ( ) $\begin{bmatrix} 9 & 0 \\ 0 & 20 \end{bmatrix}$
- ( ) $\begin{bmatrix} 3 & 0 \\ 0 & 3 \end{bmatrix}$

Correct

Well done!

2. Given the matrix $T = \begin{bmatrix} 2 & 7 \\ 0 & -1 \end{bmatrix}$ and change of basis matrix $C = \begin{bmatrix} 7 & 1 \\ -3 & 0 \end{bmatrix}$ (whose columns are eigenvectors of T), calculate the diagonal matrix 1 / 1 point