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11.3.1 The Unit Basis Vectors, Again

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Week 11 due Dec 22, 2023 21:12 IST Completed

11.3.1 The Unit Basis Vectors, Again

Video

Start of transcript. Skip to the end.

Dr. Rovert van de Geijn: Let's start by revisiting the unit basis vectors.

Here are the unit basis vectors for \mathbb{R}^3 .

Any vector in \mathbb{R}^3 can be written as a linear combination of these vectors.

They're nice.

You've seen this many, many times in other classes before

▶ 0:00 / 0:00

▶ 2.0x

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Reading Assignment

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Read Unit 11.3.1 of the notes. [\[LINK\]](#)

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Calculator

Homework 11.3.1.1

7/7 points (graded)
Consider the vectors

$$v_0 = \begin{pmatrix} 1 \\ 0 \\ 0 \end{pmatrix}, \quad v_1 = \begin{pmatrix} 1 \\ 1 \\ 0 \end{pmatrix} \quad \text{and} \quad v_2 = \begin{pmatrix} 1 \\ 1 \\ 1 \end{pmatrix}$$

1. Compute

1.

$v_0^T v_1 =$

✓ Answer: 1

2.

$v_0^T v_2 =$

✓ Answer: 1

3.

$v_1^T v_2 =$

✓ Answer: 2

4.

$v_0^T v_0 =$

✓ Answer: 1

5.

$v_1^T v_1 =$

✓ Answer: 2

6.

$v_2^T v_2 =$

✓ Answer: 3

2. These vectors are orthonormal.

FALSE

▼

✓ Answer: FALSE

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