12. Summary

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Summarize

Big Picture

1. We come across expressions of the form **"a number times x plus a number times y"** frequently in science and engineering.

2. These expressions can be converted into **the language of matrices**, which makes the toolkit of matrix algebra available to help solve the problem.

3. Some familiar examples include **rotating a vector**, and **change of coordinates**.

Mechanics

1. We say the **product of two matrices A, B** is the matrix AB whose entry in row i and column j is the **dot product of the ith row of A with the jth column of B**.

2. For the dot product to make sense, **we require the number of columns of A to equal the number of rows of B.**

3. Viewing an n-dimensional vector as a matrix with n rows and 1 column, this description also applies to a **matrix*vector product**.

Ask Yourself

Where does matrix multiplication come from?

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Does matrix multiplication obey the familiar rules of number multiplication?

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12. Summary

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[staff] Mechanics 2
It should be "we require the number of **columns** of A to equal the number of **rows** of B."
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