

# Daily Assessment format

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## Report

Linear algebra is a sub-field of mathematics concerned with vectors, matrices, & linear transformations. It is a key foundation to the field of machine learning. From notations used to describe the operation of algorithms to the implementation of algorithms in code.

Although linear algebra is integral to the field of machine learning, the tight relationship is often left unexplained or explained using abstract concepts such as vector spaces or specific matrix operations.

In this post, you will discover to common cases of machine learning that you may be familiar with that use, require & are really best understood using linear algebra.

After reading this post, you will know:

- the use of linear algebra structures when working with data, such as tabular datasets, & images.
- linear algebra concepts when working with data preparation, such as one hot encoding & dimensionality reduction.



→ The ingrained use of linear algebra notation & methods in sub-fields such as deep learning, natural language processing, & recommender systems.

→ The math includes at least calculus, statistics, probability theory, & linear algebra numerical analysis, & something like topology will help if you want to create your own algorithms or tackle deep learning.

Linear algebra is absolutely key to understanding the calculus & statistics you need in machine learning. Deeper intuition if you can understand machine learning methods at the level of vectors & matrices you will improve your intuition for how & when they work.

Definition of linear algebra: a branch of mathematics that is concerned with mathematical structures closed under the operations of addition & scalar multiplication & that includes the theory of systems of linear eqns. matrices, determinants, vector spaces, & linear transformations.

Linear algebra plays a major role in artificial intelligence & machine learning. In various machine learning algorithms like supervised learning & unsupervised learning to calculate i/p & to train the machines with the characteristics & expected o/p.

Main point of the matrix

The matrix trilogy suggests that everyone has the individual responsibility to make the choice between the real world & an artificial world. Though Neo is the exemplar of free will, fate plays a large role in his adventure. Neo relies on the oracle, & everything she says comes true in some way.



## Application of matrices

- almost every branch of physics, including statistical mechanics, optics, electromagnetism, quantum mechanics, & quantum electrodynamics, matrices are used to study physical phenomena, such as the motion of rigid bodies
- matrices have also come to have important applications in computer graphics, where they have been used to represent rotations & other transformations of images. A matrix with  $m$  rows &  $n$  columns is called a square matrix of order  $n$ .