



# ORTHONORMAL MATRICES

## Why

TODO

## Definition

An *orthonormal* matrix is a matrix whose columns are an orthonormal family of vectors.

Some authors call these *orthogonal* matrices or *real orthogonal* or *unitary* matrices.

## Notation

Let  $A \in \mathbf{F}^{m \times n}$ . Something something

$$AA^T = I.$$

## Characterizations

**PROPOSITION 1.** *A matrix is orthonormal if and only if its transpose product with the matrix is the identity.*

**PROPOSITION 2.** *A matrix is orthonormal if and only if its transpose is orthonormal.*

