

## ORTHOGONAL MATRICES

## Definition

An *orthonormal* (or *orthogonal*) matrix is a matrix whose columns are an orthonormal family of vectors.

Some authors call these  $real\ orthogonal\ or\ unitary\ matrices.$ 

## Notation

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

$$AA^{\top} = I.$$

## 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.

