



## Why

Well, least squares, for instance.<sup>1</sup>

## Definition

An *orthogonal triangular decomposition* (or *orthogonal triangular factorization*) of a  $A \in \mathbf{C}^{m \times n}$  with  $m \geq n$  is an ordered pair of matrices  $(Q, R)$  where  $Q$  is orthogonal and  $R$  is upper triangular and

$$A = QR.$$

This is universally known as a *QR factorization* or *QR decomposition*.

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<sup>1</sup>Future editions will expand this description.



