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LINEAR ALGEBRA AND ITS APPLICATIONS

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CLASS-4

A=QR FACTORIZATION

The factorization A=QR

- Let A be a matrix whose columns are a, b, c
- Let Q be the matrix whose columns are q_1, q_2 and q_3 which are determined using Gram – Schmidt process.
- Then to find the third matrix which connects A and Q, express a, b, c as a linear combination of q_1, q_2, q_3.

The whole factorization is

$$A = \begin{bmatrix} a & b & c \end{bmatrix} = \begin{bmatrix} q_1 & q_2 & q_3 \end{bmatrix} \begin{bmatrix} q_1^T a & q_1^T b & q_1^T c \\ & q_2^T b & q_2^T c \\ & & q_3^T c \end{bmatrix}$$

A = Q R

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THANK YOU

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