

SCHOOL OF APPLIED SCIENCE & HUMANITIES  
DEPARTMENT OF MATHEMATICS

Subject: Linear Algebra

Subject Code : 25MT103

Sem. : I

Academic Year: 2025-2026

Section: 14

Regulation: R25

**T5 - Assignment 7**

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1. Calculate the QR decomposition and Singular Value Decomposition for the following matrices, if possible.

a.  $\begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix}$

b.  $\begin{pmatrix} 3 & 0 \\ 2 & 0 \end{pmatrix}$

c.  $\begin{pmatrix} 1 & 1 \\ 0 & 1 \\ 1 & 0 \end{pmatrix}$

d.  $\begin{bmatrix} 11 & -8 & 4 \\ -8 & -1 & -2 \\ 4 & -2 & -4 \end{bmatrix}$