

SCHOOL OF APPLIED SCIENCE & HUMANITIES
DEPARTMENT OF MATHEMATICS

Subject: Linear Algebra

Subject Code : 25MT103

Sem. : I

Academic Year: 2025-2026

Section: 21

Regulation: R25

T5 - Assignment 7

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