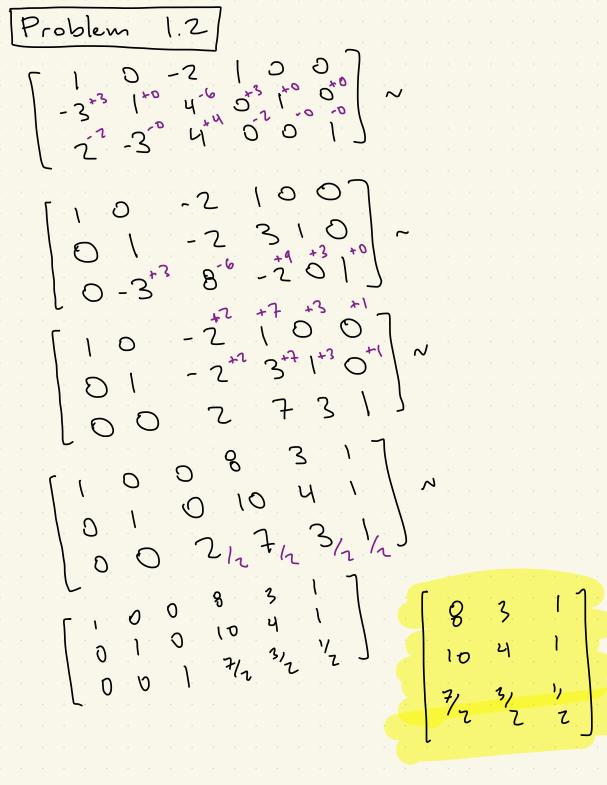
Homework 6 Solutions CAS CS 132 Fall 2024

Problem 1.1]
$$\begin{bmatrix} 2 - 1 \\ 3 \end{bmatrix}^{-1} = \frac{1}{2(3) - (-1)3} \begin{bmatrix} 3 & 1 \\ -3 & 2 \end{bmatrix}$$

$$= \frac{1}{9} \begin{bmatrix} 3 & 1 \\ -3 & 2 \end{bmatrix}$$

$$= \begin{bmatrix} \frac{1}{3} & \frac{1}{4} \\ -\frac{1}{3} & \frac{2}{4} \end{bmatrix}$$



Problem 1.3

$$\begin{bmatrix}
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Problem \[\begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & -3 & 1 \end{pmatrix} \] 0 3 1 0 1 D 0 0 1 -

Problem 2.2 This is rotation about the z-axis followed by reflection across the 42-plane. Therfore its squer is I Problem 2.3

n = 0

Note: A4 + I and A5 + I because this would imply A = - I or A? = - I.

Problem 3.1

A(C-1(AB)T)TC A (AB)TT CTC A (AB)(CT)'C K(XB(CT) CF

$$\begin{pmatrix} 0 & 0 \\ -1 & 0 \end{pmatrix}$$

$$\begin{bmatrix} -1 & 0 \\ 0 & 0 \end{bmatrix}$$

$$\begin{bmatrix} -1 & 0 \\ 0 & 0 \end{bmatrix} + \begin{bmatrix} 3 & 0 \\ 0 & 1 \end{bmatrix} \begin{bmatrix} -1 & 0 \\ 0 & 0 \end{bmatrix} + \begin{bmatrix} 2 & 0 \\ 0 & 0 \end{bmatrix} = \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$$

$$= \begin{bmatrix} 1 & 0 \\ 0 & 0 \end{bmatrix} + \begin{bmatrix} -3 & 0 \\ 0 & 0 \end{bmatrix} + \begin{bmatrix} 2 & 0 \\ 0 & 0 \end{bmatrix} = \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$$