

## Overview of problems



Example Set: A

Determine if the matrices are inverses of each other

$$\begin{bmatrix} 6 & -2 \\ 7 & -2 \end{bmatrix} \text{ and } \begin{bmatrix} -1 & 1 \\ -7/2 & 3 \end{bmatrix}$$

$$\begin{bmatrix} -3 & 3 \\ 3 & -3 \end{bmatrix} \text{ and } \begin{bmatrix} 3 & -3 \\ -3 & 3 \end{bmatrix}$$

$$\begin{bmatrix} -2 & 3 \\ -4 & 5 \end{bmatrix} \text{ and } \begin{bmatrix} 5/2 & -3/2 \\ 2 & -1 \end{bmatrix}$$



## Example Set: B

Find the inverse of the following matrices

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

$$\begin{bmatrix} 5 & -3 \\ 0 & -2 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 1/3 \\ 2 & 2/3 \end{bmatrix}$$



## Example Set: C

Solve the matrix equation

$$\begin{bmatrix} 7 & -4 \\ -5 & 3 \end{bmatrix} X = \begin{bmatrix} 2 & 0 \\ 1 & -6 \end{bmatrix}$$



*Example Set: D*

*Solve the matrix equation*

$$\begin{bmatrix} 3 & 1 \\ 0 & 1 \end{bmatrix} X = \begin{bmatrix} 5 & -2 \\ 6 & -1 \end{bmatrix}$$



*Example Set: E*

*Solve the matrix equation*

$$\begin{bmatrix} 4 & 7 \\ 1 & 2 \end{bmatrix} X + \begin{bmatrix} 2 & 7 \\ -3 & 4 \end{bmatrix} = \begin{bmatrix} 6 & 2 \\ -2 & 3 \end{bmatrix}$$

# Identity and Inverse Matrices



## Overview of problems- KEY



Example Set: A

Determine if the matrices are inverses of each other

$$\begin{bmatrix} 6 & -2 \\ 7 & -2 \end{bmatrix} \text{ and } \begin{bmatrix} -1 & 1 \\ -7/2 & 3 \end{bmatrix} \quad \text{yes}$$

$$\begin{bmatrix} -3 & 3 \\ 3 & -3 \end{bmatrix} \text{ and } \begin{bmatrix} 3 & -3 \\ -3 & 3 \end{bmatrix} \quad \text{NO}$$

$$\begin{bmatrix} -2 & 3 \\ -4 & 5 \end{bmatrix} \text{ and } \begin{bmatrix} 5/2 & -3/2 \\ 2 & -1 \end{bmatrix} \quad \text{yes}$$



## Example Set: B

Find the inverse of the following matrices

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

$$\begin{bmatrix} 1/6 & 1/3 \\ 1/6 & -2/3 \end{bmatrix}$$

$$\begin{bmatrix} 5 & -3 \\ 0 & -2 \end{bmatrix}$$

$$\begin{bmatrix} 1/5 & -3/10 \\ 0 & -1/2 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 1/3 \\ 2 & 2/3 \end{bmatrix}$$

NO INVERSE



## Example Set: C

Solve the matrix equation

$$\begin{bmatrix} 7 & -4 \\ -5 & 3 \end{bmatrix} X = \begin{bmatrix} 2 & 0 \\ 1 & -6 \end{bmatrix} \quad X = \begin{bmatrix} 10 & -24 \\ 17 & -42 \end{bmatrix}$$



Example Set: D

Solve the matrix equation

$$\begin{bmatrix} 3 & 1 \\ 0 & 1 \end{bmatrix} X = \begin{bmatrix} 5 & -2 \\ 6 & -1 \end{bmatrix} \quad X = \begin{bmatrix} -1/3 & -1/3 \\ 6 & -1 \end{bmatrix}$$



Example Set: E

Solve the matrix equation

$$\begin{bmatrix} 4 & 7 \\ 1 & 2 \end{bmatrix} X + \begin{bmatrix} 2 & 7 \\ -3 & 4 \end{bmatrix} = \begin{bmatrix} 6 & 2 \\ -2 & 3 \end{bmatrix}$$

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