



## Quiz 1a

## Numerical Analysis Spring 2023

Name: \_\_\_\_\_

NetID:

Define

$$\mathbf{A} = \begin{bmatrix} 3 & 2 & -1 \\ -4 & 3 & 5 \\ 1 & 3 & -2 \\ -2 & 4 & 1 \end{bmatrix}, \quad \mathbf{x} = \begin{bmatrix} 1 \\ 3 \\ -1 \end{bmatrix}, \quad \mathbf{y} = \begin{bmatrix} -1 \\ 0 \\ 4 \end{bmatrix}$$

**Problem 1.** Compute  $\mathbf{Ax}$

**Problem 2.** Compute  $\mathbf{Ay}$

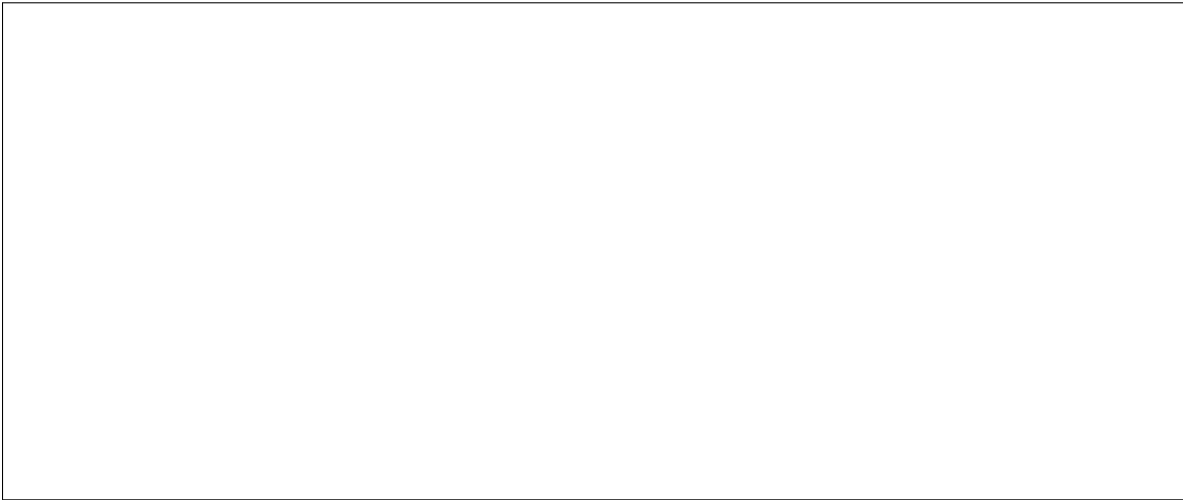
Define

$$\mathbf{A} = \begin{bmatrix} 3 & 2 & -1 \\ -4 & 3 & 5 \\ 1 & 3 & -2 \\ -2 & 4 & 1 \end{bmatrix}, \quad \mathbf{B} = \begin{bmatrix} -1 & 1 \\ 0 & 3 \\ 4 & -1 \end{bmatrix}, \quad \mathbf{D} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 2 & 0 & 0 \\ 0 & 0 & 3 & 0 \\ 0 & 0 & 0 & 4 \end{bmatrix}.$$

**Problem 3.** Compute  $\mathbf{AB}$



**Problem 4.** Compute  $\mathbf{DA}$



**Instructions:**

- Do not begin until instructed.
- Fill out your name at netID
- Show your work clearly and circle your final answer.
- You can use this paper for scratch paper, but it will not be collected or graded.
- Do not look at anyone other student's solutions.

Formula for the product of a  $m \times n$  matrix  $\mathbf{A}$  and  $n \times p$  matrix  $\mathbf{B}$ :

$$[\mathbf{AB}]_{i,j} = \sum_{k=1}^n [\mathbf{A}]_{i,k} [\mathbf{B}]_{k,j}$$