LINEAR ALGEBRA
SPRING 2024

ASSIGNMENT 3.3
DUE JANUARY 31

Exercise 1. Let

$$A = \begin{pmatrix} -1 & 2 \\ 5 & 4 \\ 2 & -3 \end{pmatrix} \quad \text{and} \quad B = \begin{pmatrix} 3 & -2 & 1 \\ -2 & 1 & 0 \end{pmatrix}$$

Compute AB and BA in each of the three ways presented in class.

Exercise 2. Let

$$A = \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix} \quad \text{and} \quad B = \begin{pmatrix} x & y \\ z & w \end{pmatrix}.$$

The equation $AB = BA$ leads to 4 linear equations in x, y, z, w. Solve this system and express B in terms of the solution.