Math 4133 - Linear Algebra

Quiz #4 - 2010.02.22

Solutions

Consider the following two matrices:

$$A = \begin{bmatrix} -1 & \frac{1}{2} \\ 1 & \frac{1}{2} \end{bmatrix}, B = \begin{bmatrix} -\frac{1}{2} & \frac{1}{2} \\ 1 & 1 \end{bmatrix}$$

1. Compute $\det(A)$.

$$\det(A) = -1 \cdot \frac{1}{2} - 1 \cdot \frac{1}{2} = -1$$

2. Compute $\det(B)$.

$$\det(b) = -\frac{1}{2} \cdot 1 - \frac{1}{2} \cdot 1 = -1$$

3. Compute AB.

$$AB = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

4. Compute BA.

$$BA = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

5. What is the relationship between A and B?

A and B are inverse of each other.