

Math 2013 - Introduction to Discrete Mathematics

Quiz #7 - 2005.09.30

Solutions

Consider the following matrices:

$$A = \begin{bmatrix} 2 & 3 \\ -1 & 4 \\ 5 & 3 \end{bmatrix}, \quad B = \begin{bmatrix} 3 & 4 & 1 \\ 4 & 3 & 2 \\ 1 & -5 & -2 \end{bmatrix}, \quad C = \begin{bmatrix} 2 & 3 & -1 & 3 \\ -1 & 2 & -4 & 2 \\ -5 & -3 & 2 & 1 \end{bmatrix}$$

Perform the following operations, if possible. If you cannot, explain why.

1. AB

Inner dimensions do not agree. Therefore this operation cannot be done.

2. BA

$$BA = \begin{bmatrix} 7 & 28 \\ 15 & 30 \\ -3 & -23 \end{bmatrix}$$

3. B^2

$$B^2 = BB = \begin{bmatrix} 26 & 19 & 9 \\ 26 & 15 & 6 \\ -19 & -1 & -5 \end{bmatrix}$$

4. BC

$$BC = \begin{bmatrix} -3 & 14 & -17 & 18 \\ -5 & 12 & -12 & 20 \\ 17 & -1 & 15 & -9 \end{bmatrix}$$

5. AC

Inner dimensions do not agree. Therefore this operation cannot be done.