

Take-Home Quiz 3

(Due at 7:00 p.m. on Fri. September 28, 2007)

Division:

ID#:

Name:

Let A and B be 3×3 matrices given below, and $C = [A \mid I]$, where I is the identity matrix of size three.

$$A = \begin{bmatrix} -3 & 1 & -1 \\ -3 & 1 & -2 \\ -1 & 0 & -2 \end{bmatrix}, \quad B = \begin{bmatrix} 1 & 0 & 2 \\ 0 & 1 & 4 \\ -3 & 1 & -1 \end{bmatrix}, \quad \text{and } C = \begin{bmatrix} -3 & 1 & -1 & 1 & 0 & 0 \\ -3 & 1 & -2 & 0 & 1 & 0 \\ -1 & 0 & -2 & 0 & 0 & 1 \end{bmatrix}$$

We applied elementary row operations $[1, 3]$, $[1; -1]$, $[2, 1; 3]$ to the matrix C in this order and obtained a matrix $[B \mid P]$, where B is a 3×3 matrix above and P is a 3×3 matrix.

1. Find the matrix P .

2. Find the reduced row echelon form of the matrix C . (Solution only.)

3. Find the inverse matrix of A . (Solution only.)

4. Express P^{-1} as a product of elementary matrices using the notation $P(i; c)$, $P(i, j)$ and $P(i, j; c)$.

Message 欄：将来の夢、目標、25年後の自分について、世界について。[HP 掲載不可は明記のこと]