

This quiz has three problems worth 10 points.

1. (4 points) For each augmented matrix below, state *in words* what the next elimination step would be and write out the elimination matrix for that step. (Your words can be something like, "Add row 1 to row 2." You do not have to perform the elimination step.)

(a)
$$\begin{bmatrix} 1 & 2 & 3 & 0 \\ 0 & 5 & -1 & 7 \\ 0 & -2 & 0 & 1 \end{bmatrix}$$

(b)
$$\begin{bmatrix} 1 & 2 & 3 & 0 \\ 0 & 0 & -1 & 7 \\ 0 & 8 & 4 & 1 \end{bmatrix}$$

2. (2 points) The matrices C and D are written below. Of the two possible products, namely CD or DC , only one is defined. **State** which one is defined and calculate the product.

$$C = \begin{bmatrix} 2 & \pi \\ -1 & 0 \end{bmatrix} \quad D = \begin{bmatrix} 1 & 1 \\ -1 & 0 \\ 1 & 2 \\ 0 & -1 \end{bmatrix}$$

3. (4 points) Suppose A is a 30×50 matrix and B is a 50×40 matrices.

(a) What is the dimension of the matrix AB ?

(b) What rows or columns or matrices to you multiply to find

i. column 10 of AB ?

ii. row 15 of AB ?

iii. the entry in row 4 and column 5 of AB ?