

MA 371 9/26/03 Quiz 3. **NAME:**

Calculators are not to be used. Show all work.

1. For each of the following, find the 3×3 elementary matrix E such that the product EA has the given effect on the $3 \times n$ matrix A .

(a) Interchanges rows 2 and 3.

(b) Multiplies row 3 by 5 and adds it to row 1.

2. Find the inverse of each of the following elementary matrices.

(a)
$$\begin{pmatrix} 1 & 0 & 4 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}$$

(b)
$$\begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & 10 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}$$

3. Simplify: $(AB)^{-1}ABC^{-1}(A^{-1}C^{-1})^{-1}$