Math 002B Assignment I part 2 Name_____

Instructions: Write complete legible solutions to the following problems in the space provided. Be sure to supply all the necessary steps that lead to your answers.

1. Find the result of multiplying the matrix A_{2x2} by given elementary matrix:

a. $\begin{bmatrix} 1 & 0 \\ -2 & 1 \end{bmatrix}$ b. $\begin{bmatrix} 1 & 2 \\ 0 & 1 \end{bmatrix}$ c. $\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$

Answers

a. b. c.

2. Find an elementary matrix the perform the following operations on the matrix A_{3x3}

a. Add three times row1 to row2

b. Add -2 times row2 to row3.

c. Multiply row3 by 5.

3. Write the matrix A as a product of elementary matrices.

$$\mathbf{A} = \begin{bmatrix} 1 & 2 \\ 3 & 2 \end{bmatrix}$$

b. $\mathbf{A} = \begin{bmatrix} 1 & 1 & 1 \\ 2 & 0 & 1 \\ 1 & 0 & 1 \end{bmatrix}$

4. Factor the given matrix into a product of an upper and a lower triangular matrices.

a. $\mathbf{A} = \begin{bmatrix} 1 & 1 \\ 2 & 1 \end{bmatrix}$

b. $\mathbf{A} = \begin{bmatrix} 1 & 2 & 0 \\ 1 & 1 & 0 \\ 1 & 0 & 1 \end{bmatrix}$