LARSON—MATH 310—CLASSROOM WORKSHEET 10
Elimination Matrices

1. Find a matrix $E$ which adds (one times) the first row to the second row.

2. Check by finding $E\vec{u}$ where $\vec{u} = \begin{bmatrix} 1 \\ -1 \\ 5 \end{bmatrix}$.

3. Find a matrix $E$ which adds (one times) the second row to the third row.

4. Check by finding $E\vec{v}$ where $\vec{v} = \begin{bmatrix} 7 \\ 1 \\ -1 \end{bmatrix}$.

5. Find a matrix $E$ which adds $-2$ times the first row to the third row.

6. Check by finding $E\vec{w}$ where $\vec{w} = \begin{bmatrix} 1 \\ 3 \\ 2 \end{bmatrix}$. 
7. Let \( E = \begin{bmatrix} 1 & 0 & 0 \\ -1 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \) What is the effect of (left) multiplication by \( E \) on a vector?

8. Let \( E = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & -2 \\ 0 & 0 & 1 \end{bmatrix} \) What is the effect of (left) multiplication by \( E \) on a vector?

9. Let \( E = \begin{bmatrix} 1 & 5 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \) What is the effect of (left) multiplication by \( E \) on a vector?

10. Let \( E = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 4 & 0 & 1 \end{bmatrix} \) What is the effect of (left) multiplication by \( E \) on a vector?

11. Let \( E = \begin{bmatrix} 1 & 0 & 0 \\ -1 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \) What is the effect of (left) multiplication by \( E \) on a vector?