6. Compute the following:

(a) $\begin{pmatrix} 0 & 0 & 1 \\ 1 & 0 & 0 \\ 0 & 1 & 0 \end{pmatrix} \begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{pmatrix} = \begin{pmatrix} 7 & 8 & 9 \\ 1 & 2 & 3 \\ 4 & 5 & 6 \end{pmatrix}$

(b) $\begin{pmatrix} 0 & 0 & 1 \\ 1 & 0 & 0 \\ 0 & 1 & 0 \end{pmatrix}^{-1} \begin{pmatrix} 7 & 8 & 9 \\ 1 & 2 & 3 \\ 4 & 5 & 6 \end{pmatrix} = \begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{pmatrix}$

$\begin{pmatrix} 0 & 0 & 1 \\ 1 & 0 & 0 \\ 0 & 1 & 0 \end{pmatrix}^{-1} \left[\begin{pmatrix} 0 & 0 & 1 \\ 1 & 0 & 0 \\ 0 & 1 & 0 \end{pmatrix} \begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{pmatrix} \right]$

(c) $\begin{pmatrix} 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 1 & 0 & 0 & 0 & 0 \\ 0 & -2 & 0 & 1 & 0 & 0 & 0 \\ 0 & 2 & 0 & 0 & 1 & 0 & 0 \\ 0 & -213 & 0 & 0 & 0 & 1 & 0 \\ 0 & 512 & 0 & 0 & 0 & 0 & 1 \end{pmatrix} \begin{pmatrix} 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & -1 & 1 & 0 & 0 & 0 & 0 \\ 0 & 2 & 0 & 1 & 0 & 0 & 0 \\ 0 & -2 & 0 & 0 & 1 & 0 & 0 \\ 0 & 213 & 0 & 0 & 0 & 1 & 0 \\ 0 & -512 & 0 & 0 & 0 & 0 & 1 \end{pmatrix} = I$

Gauss Transforms.

(d) Fill in the boxes:

$\begin{pmatrix} 1 & 0 & 0 \\ \boxed{-2} & 1 & 0 \\ \boxed{1} & 0 & 1 \end{pmatrix} \begin{pmatrix} 2 & 4 & 1 \\ \boxed{4} & 1 & 2 \\ -2 & -1 & 3 \end{pmatrix} = \begin{pmatrix} 2 & 4 & 1 \\ 0 & \boxed{-7} & \boxed{0} \\ 0 & \boxed{3} & \boxed{4} \end{pmatrix}$