1) Using the information below, find a formula for $\vec{x}_{B_2}$. That is, find the vector $\vec{x}$ expressed in $B_2$ coordinates. No need to simplify anything.

$$B_1 = \begin{bmatrix} -1 & 2 & 4 \\ 1 & 5 & 2 \\ -1 & 0 & 1 \end{bmatrix}, B_2 = \begin{bmatrix} 1 & 7 & 1 \\ 2 & 6 & 0 \\ 3 & 5 & 1 \end{bmatrix}, \vec{x} = \begin{bmatrix} 3 \\ 4 \\ 5 \end{bmatrix}_{B_1}$$

2) A linear operator $T'$ takes input from $\mathbb{R}^7$. It is known that there is a vector $\vec{b}$ such that $T(\vec{x}) = \vec{b}$ has at least 4 solutions. List all possible values for $\dim(\text{Col}(T'))$. That is, list all possible values for the dimension of the column space of the matrix associated to $T'$. 