Each of the items below is the augmented matrix of a linear system of equations. Your task is, for each matrix:

1. Identify if the matrix is in reduced row echelon form.
2. If the matrix is not in RREF, explain why.
3. If the matrix is in RREF, write the solution of the system in vector form.

Matrices:

1. $\begin{bmatrix} 1 & 0 & 0 & 2 & -3 \\ 0 & 1 & 0 & -2 & 1 \\ 0 & 0 & 1 & 1 & 0 \end{bmatrix}$

2. $\begin{bmatrix} 1 & 2 & 0 & 3 & 5 \\ 0 & 1 & 0 & -2 & 1 \\ 0 & 0 & 1 & -4 & 3 \\ 0 & 0 & 0 & 3 & 2 \end{bmatrix}$

3. $\begin{bmatrix} 1 & 0 & 2 & 0 & 3 & 0 & -5 \\ 0 & 0 & 0 & 1 & 4 & 0 & 7 \\ 0 & 0 & 0 & 0 & 0 & 1 & 12 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$

4. $\begin{bmatrix} 1 & 2 & 3 & 4 & 5 \end{bmatrix}$

5. $\begin{bmatrix} 1 & 2 & 3 & 0 & 2 & 0 & 5 & 2 \\ 0 & 0 & 0 & 1 & -2 & 0 & 3 & -8 \\ 0 & 0 & 0 & 0 & 0 & 1 & 4 & 10 \end{bmatrix}$

6. $\begin{bmatrix} 1 & 0 & 2 & 0 & 0 & 0 & 3 & 4 & 9 \\ 0 & 1 & -2 & 0 & 0 & 0 & -4 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 & 0 & -1 & 7 \\ 0 & 0 & 0 & 0 & 1 & 3 & 2 & 2 & 8 \end{bmatrix}$

7. $\begin{bmatrix} 1 & 0 & 2 & 0 & 1 & 4 \\ 0 & 1 & -4 & 0 & 0 & 3 \\ 0 & 0 & 0 & 1 & 2 & 5 \\ 0 & 0 & 0 & 0 & 0 & 1 \end{bmatrix}$

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