MAT 2705005 Quiz 4 Print Name (Last, First) jantzen, bob /10

Show absolutely all work (no scratch paper calculations or mental calculations unreported) on this sheet in a clearly organized way, labeling problems, parts and expressions written down.

① $3X_1+5X_2+X_3=3$
$X_1+2X_2+X_3=1$

a) Write this system in the vector(matrix) form $A\vec{X}=\vec{b}$.

b) Let $B=[A,\vec{b}]$ be the augmented matrix. Show each step in the reduction of B to its "rref form" rref(B).

c) Write out the corresponding scalar equations, identifying the bound and free variables.

d) Find the solution of the system.

② $B=\begin{bmatrix}0&1&1&0&1&0&1\\0&0&0&1&1&0&1\\0&0&0&0&0&1&1\end{bmatrix}$

a) If this is the rref form of the augmented matrix of a linear system, write out the corresponding equivalent scalar equations and identify bound and free variables.

b) Find the solution of the system.