

1. Consider the augmented matrix $A = \left[\begin{array}{cc|c} 6 & 13 & 8 \\ 10 & 20 & 30 \end{array} \right]$.
- 1A. What system of linear equations is represented by A ?

1B. Find the reduced row echelon form (rref) of A *by hand*, showing all the matrices produced along the way. Say what each elementary row operation was used to produce each new matrix from the previous one.

- 1C. What is the solution of the system in part 1A?

2. Consider the system of equations whose augmented matrix is $B = \left[\begin{array}{ccc|c} 2 & 1 & 13 & 12 \\ 1 & 0 & 5 & 7 \\ 3 & 4 & 27 & 12 \end{array} \right]$.

Find all the solutions of the system using the methods and notation we've developed in class. If there are no solutions, explain why. Otherwise, give a specific solution and show it satisfies the first equation the augmented matrix represents. (Use your calculator to find $\text{rref}(B)$).

3. Now consider the system of equations whose augmented matrix is $C = \left[\begin{array}{cccc|c} 2 & 1 & 13 & 12 & 10 \\ 1 & 0 & 5 & 7 & 6 \\ 3 & 4 & 27 & 12 & 14 \end{array} \right]$.

Again, find all the solutions of the system using the methods and notation we've developed in class. If there are no solutions, explain why; otherwise, give a specific solution and show it satisfies the first equation the augmented matrix represents. (Use your calculator to find the rref).