8.2 Practice Problems

1. Write the augmented matrix of the given system. $\begin{cases} 2x+3y=8 \\ 3x+4y=-5 \end{cases}$

2a. Write the system of equations corresponding to each augmented matrix. $\left[\begin{array}{cc|c} 1 & -2 & 1 \\ -5 & 7 & 2 \end{array}\right]$

2b. Then perform the indicated row operation. $R_2=-3r_1+r_2$

The reduced row echelon form of the system of linear equations is given. Write the system of equations corresponding to the given matrix. Determine whether the system is consistent or inconsistent. If it is consistent, give the solutions.

3. $\left[\begin{array}{ccc|c} 1 & 0 & 0 & 5 \\ 0 & 1 & 0 & -8 \\ 0 & 0 & 1 & 3 \end{array}\right]$

4. $\left[\begin{array}{ccc|c} 1 & 0 & 0 & 2 \\ 0 & 1 & 0 & 3 \\ 0 & 0 & 0 & 5 \end{array}\right]$

5. $\left[\begin{array}{ccc|c} 1 & 0 & 3 & 1 \\ 0 & 1 & -4 & 9 \\ 0 & 0 & 0 & 0 \end{array}\right]$

Solve each system of equations using matrices (row operations). If the system has no solution, say that it is inconsistent.

6. $\begin{cases} 2x+4y=10 \\ x+y=3 \end{cases}$

7. $\begin{cases} x-y=4 \\ 4x-4y=16 \end{cases}$

10. $\begin{cases} x+2y-3z=-16 \\ 2x-4y+z=20 \\ 3x+5y-2z=-17 \end{cases}$

11. $\begin{cases} x-y+z=5 \\ 3x+2y-2z=0 \end{cases}$

12. $\begin{cases} 3x-2y+2z=6 \\ 7x-3y+2z=-1 \\ 2x-3y+4z=0 \end{cases}$

13. $\begin{cases} x+2y-z=3 \\ 2x-y+2z=6 \\ x-3y+3z=4 \end{cases}$