I. Solve the following system using Gaussian elimination:

1. $\left\{\begin{array}{c}x+y-3z=4\\2x+y-z=2\\3x+2y-4z=7\end{array}\right.$ Ans.: This system has no solutions.

2. $\left\{\begin{array}{c}x+y-3z=4\\2x+y-z=2\\3x+2y-4z=6\end{array}\right.$ Ans.: $\left(\begin{matrix}x\\y\\z\end{matrix}\right)=\left(\begin{matrix}-2-2z\\6+5z\\z\end{matrix}\right)$

3. $\left\{\begin{array}{c}\&x\_{2}-3 x\_{3}+4 x\_{4}= 1\\\&2x\_{1}-2 x\_{2}+x\_{3}= - 1\\\&2x\_{1}-x\_{2}-2x\_{3}+4x\_{4}=0\\\&-6x\_{1}+4x\_{2}+3x\_{3}- 8x\_{4}= 1\end{array}\right.$Ans.: $\left(\begin{matrix}\begin{matrix}x\_{1}\\x\_{2}\\x\_{3}\end{matrix}\\x\_{4}\end{matrix}\right)=\left(\begin{matrix}\begin{matrix}\frac{1}{2}+\frac{5}{2}x\_{3}-4x\_{4}\\1+3x\_{3}-4x\_{4}\\x\_{3}\end{matrix}\\x\_{4}\end{matrix}\right)$

II. Solve the following system by Cramer’s rule:

$1. \left\{\begin{matrix}3x\_{1}-2x\_{2}=6\\-5x\_{1}+4x\_{2}=8\end{matrix}\right.$ Ans: $\left(\begin{matrix}x\_{1}\\x\_{2}\end{matrix}\right)=\left(\begin{matrix}20\\27\end{matrix}\right)$

2. $\left\{\begin{array}{c}x+y=3\\-3x+2z=0\\y-2z=2\end{array}\right.$ Ans.: $\left(\begin{matrix}x\\y\\z\end{matrix}\right)=\left(\begin{matrix}1/4\\11/4\\3/8\end{matrix}\right)$

III. Solve the following system by Gaussian elimination and Cramer’s rule:

1. $\left\{\begin{array}{c}x-2y+z=0\\2x+y-3z=5\\4x-7y+z=-1\end{array}\right.$ Ans.: $\left(\begin{matrix}x\\y\\z\end{matrix}\right)=\left(\begin{matrix}3\\2\\1\end{matrix}\right)$

2. $\left\{\begin{array}{c}2x-2y=-6\\x-y+z=1\\3y-2z=-5\end{array}\right.$ Ans.: $\left(\begin{matrix}x\\y\\z\end{matrix}\right)=\left(\begin{matrix}-2\\1\\4\end{matrix}\right)$