Intermediate Algebra Skill

Solving 3 x 3 Linear System by Gaussian Elimination

Solve the following Linear Systems of Equations by Gaussian Elimination:

1) $\begin{cases} 4x+2y-6z=34 \\ 2x+y+3z=3 \\ 6x+3y-3z=37 \end{cases}$

8) $\begin{cases} 2x-4y+z=10 \\ x+2y-z=1 \\ -x-3y+2z=0 \end{cases}$

2) $\begin{cases} 3x-y+z=-1 \\ 2x+3y+z=4 \\ 5x+4y+2z=5 \end{cases}$

9) $\begin{cases} 3x+y-z=4 \\ x+2y+2z=5 \\ 4x+y-z=3 \end{cases}$

3) $\begin{cases} 2x+y+z=-2 \\ 2x-y+3z=6 \\ 3x-5y+4z=7 \end{cases}$

10) $\begin{cases} 5x+6y-5z=-1 \\ 3x-4y-3z=7 \\ -2x+5y+z=-4 \end{cases}$

4) $\begin{cases} 6x+2y-4z=15 \\ -3x-4y+2z=-6 \\ 4x-6y+3z=8 \end{cases}$

11) $\begin{cases} 2x+3z=1 \\ 3x-5y=10 \\ 4y-3z=13 \end{cases}$

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

12) $\begin{cases} 3y+4z=6 \\ 3x-5z=3 \\ 2x+5y=2 \end{cases}$

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

13) $\begin{cases} \dfrac{1}{2}x+\dfrac{1}{3}y=4 \\ \dfrac{1}{2}y-\dfrac{1}{4}z=1 \\ \dfrac{1}{4}x+\dfrac{1}{2}z=5 \end{cases}$

7) $\begin{cases} x+y+z=3 \\ 2x-y-z=0 \\ x+2y-z=-1 \end{cases}$

14) $\begin{cases} \dfrac{1}{3}x-\dfrac{1}{3}z=-2 \\ \dfrac{1}{6}y+\dfrac{1}{3}z=7 \\ \dfrac{2}{3}x+\dfrac{1}{4}y=9 \end{cases}$

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Answers to Solving 3 x 3 Linear System by Gaussian Elimination

1) $(Dependent)$

2) $(-1,1,3)$

3) $(-3,0,4)$

4) $\left(2,-\dfrac{1}{2},-1\right)$

5) $(0,1,0)$

6) $(3,1,-2)$

7) $(1,0,2)$

8) $(3,-1,0)$

9) $(-1,5,-2)$

10) $(-2,-1,-3)$

11) $(5,1,-3)$

12) $(6,-2,3)$

13) $(4,6,8)$

14) $(9,12,15)$