Método de Gauss-Jordan

Utilizando el método de Gauss-Jordan determine el conjunto solución y halle dos soluciones particulares de los siguientes sistemas lineales:

1. $\begin{cases} 9x - 3y - z = -18 \\ 3x - y + \dfrac{9}{2}z = \dfrac{-9}{2} \end{cases}$

2. $\begin{cases} a + c + 3d = 1 \\ 2a + b + 2c + 4d = 0 \\ a + b + c + d = -1 \end{cases}$

3. $\begin{cases} p - 2q = 4 \\ q + 2r = 3 \\ -p + 3q + 2r = -1 \end{cases}$

4. $\begin{cases} -2y + 4z + 8w = -2 \\ x + 3z + 2w = 0 \\ x + 2y - z - 5w = 2 \end{cases}$

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

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

R/ $\left(2 - z - \dfrac{5w}{3}, \dfrac{4w}{3}, z, w\right)$, con $z, w \in \mathbb{R}$

7. $\begin{cases} 2z + 14w = 7 \\ -x + y - z + 2w = 9 \\ -2x + 2y - 3z - w = -1 \end{cases}$

R/ $\left(y - \frac{329}{4}, y, \frac{231}{4}, \frac{-31}{4}\right)$, con $y \in \mathbb{R}$

8. $\begin{cases} 5x - 15y + 4z = 7 \\ 2x - 6y + 4z = 12 \\ 3x - 9y + 4z = 11 \end{cases}$

R/ $\varnothing$

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

R/ $\left(-z + \frac{3w}{4} + \frac{9}{4}, \frac{-7}{4} + z - \frac{w}{4}, z, w\right)$, con $z, w \in \mathbb{R}$

10. $\begin{cases} a - 2b + c - d + 2e = 10 \\ 2a - 4b + 4d + 2e = 8 \\ -4a + 8b + c - 11d - 2e = -10 \end{cases}$

R/ $(4 + 2b - 2d, b, 6 + 3d, d, 0)$, con $b, d \in \mathbb{R}$

11. $\begin{cases} 9c - d = -9 \\ 2a - 4b + 3c - d = -1 \\ -a + 2b - 3c + d = 2 \end{cases}$

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

13. $\begin{cases} -x - y + 2z + w = 3 \\ -3x - 3y + 8z + 4w = 14 \\ -4x - 4y + 2z + w = 1 \end{cases}$

R/ $\varnothing$

14. $\begin{cases} x - y + z + 2w = 3 \\ 3x + y + 2z + 3w = 1 \\ 7x + 5y + 4z + 5w = -3 \end{cases}$

15. $\begin{cases} 2x - y + z + w = 1 \\ x + 2y - 3z - w = 3 \\ 7x + 4y - 7z - w = 11 \end{cases}$

16. $\begin{cases} a + 2b + c - d = 3 \\ a + b + 2c - 3d + e = 2 \\ a + 4b - c + 3d - 2e = 5 \end{cases}$ R/ $(1 - 3c + 5d - 2e, 1 + c - 2d + e, c, d, e)$, con $c, d, e \in \mathbb{R}$

17. $\begin{cases} x + 3y + z - w = 1 \\ 2x + 7y + z + 2w = 2 \\ -x - 2y - 2z + 5w = -1 \end{cases}$

18. $\begin{cases} -2x + 2y - 3z - w = -1 \\ x - y + 2z + 3w = 10 \\ z + 7w = 1 \end{cases}$

19. $\begin{cases} 4x + y - z + w = 3 \\ x + y + w = 5 \\ 3x - z = -2 \end{cases}$

20. $\begin{cases} 2x + 7y - 3z - 2w = 5 \\ x + 3y - z - w = 2 \\ x + 2y - w = 1 \end{cases}$ R/ $(-1 - 2z + w, 1 + z, z, w)$, con $z, w \in \mathbb{R}$

21. $\begin{cases} x + 2y + w = 10 \\ x - y + 2z + 2w = 4 \\ x + z + w = 5 \end{cases}$

22. $\begin{cases} 2x + 3y - 9z - 4w = 1 \\ 7y - 7z - 14w = -7 \\ -x + 2y + z - 5w = -4 \end{cases}$

23. $\begin{cases} x + 3z = 2 \\ 2x + 5y + 6z = -1 \\ -x + 5y - 3z = -7 \end{cases}$

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

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

26. $\begin{cases} x + y + z - w = 3 \\ -2x - y + z + 2w = -2 \\ -x + 2z + w = 1 \end{cases}$

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

28. $\begin{cases} x - 2y + z + w = 0 \\ y + z - w = -1 \\ -x - z + 3w = 0 \end{cases}$

29. $\begin{cases} x + 2y + 3z = 7 \\ x + z = y \\ x + 5y + 5z - 14 = 0 \end{cases}$

R/ $\left(\frac{7}{3} - \frac{5z}{3}, \frac{7}{3} - \frac{2z}{3}, z\right)$, con $z \in \mathbb{R}$

30. $\begin{cases} -8a + 3b + c = -25 \\ 5a - 2b = 16 \\ a - c = 1 \\ -5a + 2b + c = -16 \end{cases}$

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31. $\begin{cases} x + 2y + z = -1 \\ 2z - y = 1 \\ x - z = 1 \\ -2x + y = -3 \end{cases}$

32. $\begin{cases} 3x + 2y + 5z - 3w = -19 \\ x - 2z = 3 \\ 2x + y - 3z + 2w = 15 \\ 3x + 3y + 15z - 8w = -56 \end{cases}$

33. $\begin{cases} 2x + y + 2z + w = 23 \\ y + 2z = 6 \\ x + y + 2z + w = 18 \\ 2x + y + 2z + 2w = 30 \end{cases}$

34. $\begin{cases} 3x - 2y + 2z + 13w = 27 \\ 2x - y + 4w = 10 \\ x - y + z + 6w = 10 \end{cases}$

R/ $(7 - w, 4 + 2w, 7 - 3w, w)$, con $w \in \mathbb{R}$

35. $\begin{cases} 2x - 8y + 4z = -2 \\ 2x - 4y = 6 \\ 3y - z = 0 \\ x - 4z = 1 \end{cases}$

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