Let S be the set of all $\lambda \in \mathbb{R}$ for which the system of linear equations $2x - y + 2z = 2$; $x - 2y + \lambda z = -4$; $x + \lambda y + z = 4$, has no solution. Then the set S

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Solution: S be the set of all $\lambda \in \mathbb{R}$

$$\left.\begin{aligned} &2x - y + 2z = 2 \\ &x - 2y + \lambda z = -4 \\ &x + \lambda y + z = 4 \end{aligned}\right\} \text{No solution}$$

If $\Delta = 0$, but at least one of Δ_x , Δ_y , $\Delta_z \neq 0$,system of equations is inconsistent and has no solution.

For $\lambda = 1$

$$\Delta_x = \begin{vmatrix} 2 & -1 & 2 \\ -4 & -2 & 1 \\ 4 & 1 & 1 \end{vmatrix} \neq 0$$

$$\Delta_x = -6$$

For $\lambda = \frac{1}{2}$

$$\Delta_x = \begin{vmatrix} 2 & -1 & 2 \\ -4 & -2 & -\frac{1}{2} \\ 4 & -\frac{1}{2} & 1 \end{vmatrix} \neq 0$$

$$\Delta_x = \frac{27}{2}$$

Then the set S contains two values

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