System of linear equations (Cramer's rule):

(i) If $\Delta \neq 0$, system of equation is consistent and has unique solution

- If at least one of $\Delta_x , \Delta_y , \Delta_z \neq 0$ Unique non-trivial solution.
- If all $\Delta_x , \Delta_y , \Delta_z = 0$ Unique trivial solution.

(ii) If $\Delta = \Delta_x = \Delta_y = \Delta_z = 0$, system of equation has infinite solution.

Example:

$$x + 2y + z = 1$$
$$2x + 4y + 2z = 2$$
$$4x + 8y + 4z = 4$$

Infinite solution

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