If the system of linear equations $x + y + z = 5$; $x + 2y + 2z = 6$ & $x + 3y + \lambda z = \mu$, $(\lambda, \mu \in \mathbb{R})$ has infinitely many solutions, then the value of $\lambda + \mu$ is:

Solution:

$\Rightarrow \mu - 7 = 0 \quad \Rightarrow \mu = 7$

Putting $\lambda = 3$ and $\mu = 7$

$$\Delta_x = \begin{vmatrix} 5 & 1 & 1 \\ 6 & 2 & 2 \\ 7 & 3 & 3 \end{vmatrix} = 0$$

$$\Delta_y = \begin{vmatrix} 1 & 5 & 1 \\ 1 & 6 & 2 \\ 1 & 7 & 3 \end{vmatrix} = 0$$

$\lambda + \mu = 10$

A. 10

B. 9

C. 12

D. 7

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