

Step-1

Given that if $Ax = b$ has infinitely many solutions, find that it is impossible for $Ax = B$ to have only one solution, and also to check that the system $Ax = B$ have no solution.

Step-2

Suppose $Ax = b$ has infinitely many solutions.

And let $x = x_n + x_p$, where x_n is the special solution, and x_p is the particular solution.

Then x_p is not changed where as x_n is changed.

Step-3

Therefore, there are infinitely many special solutions.

And are the solutions for $Ax = 0$.

If $Ax = B$ where B is different from b then $Ax = 0$ has solutions which are infinite. Those are special solution of $Ax = B$.

Therefore, $Ax = B$ have also infinite solutions.

Hence,

$Ax = B$ also have solution.