Step-1

Suppose that $B = M^{-1}AM$. Then *A* and *B* have the same eigen values. â€¦â€¦ (1)

Suppose *A* has eigen values $\lambda = \lambda_1, \lambda_2, \ldots, \lambda_n$

That is the roots of $|A - \lambda I| = 0$ are $\lambda = \lambda_1, \lambda_2, \ldots, \lambda_n$ â€¦â€¦ (2)

Replacing *A* with *A*+ *I,* we get $|(A + I) - \lambda I| = 0 \Rightarrow |A - (\lambda - 1)I| = 0$

So, its roots are $\lambda_1 - 1, \lambda_2 - 1, \ldots, \lambda_n - 1$ which the eigen values of *A*+ *I* are. â€¦â€¦ (3)

We follow that the eigen values of *A* and that of *A*+*I* are not same.

In view of (1), we confirm that *A* and *A*+*I* are not similar.