## Step-1

Let $A^H$ be the complex conjugate of the square complex matrix $A$. Find the Eigen values of $A^H$, related to Eigen values of the square complex matrix $A$.

Eigen values of the square complex matrix $A$ is calculated as below:

$$\det\left(A-\lambda I\right)=0$$

Here, $\lambda$ is an Eigen value of matrix $A$.

If complex conjugate is considered then:

$$\det\left(A^H-\bar{\lambda} I\right)=0$$

Here, $\bar{\lambda}$ is an Eigen value of $A^H$.

## Step-2

Therefore, Eigen values of $A^H$ are complex conjugate $\boxed{\bar{\lambda}}$ of Eigen value of matrix $A$.