Answer on Question #40913, Math, Linear Algebra

If zero is an eigenvalue of a linear transformation T, then T is not invertible. T/F justify

Solution

If zero is an eigenvalue of a linear transformation T, then T is not invertible. True.

We can use the fact that an eigenvalue is a root of the characteristic polynomial

$$\det(c \cdot I - T) = 0.$$

So $c = 0$ and $\det(T) = 0$. That's why T is singular and not invertible.