If $\vec{v}$ is an eigenvector of T, then so is $k\vec{v}$ for any nonzero scalar k.

If v is an eigenvector of T, then $T(v) = \lambda v$ for some $\lambda \in \mathbb{R}$. Moreover, $T(kv) = kT(v) = k\lambda v = \lambda(kv)$. Combined with the fact that eigenvectors are nonzero, this tells us that for $k \neq 0$, we have that kv is an eigenvector of T with eigenvalue λ.