Axler 7.B exercise 7 June 1, 2021

Suppose V is a complex inner product space and $T\in\mathcal{L}(V)$ is a normal operator such that $T^9=T^8$. Prove that T is self-adjoint and $T^2=T$.

In 7.1, Axler asserts that V is finite-dimensional.

$$TT^* = T^*T$$