

8A:

#3: Note that since T is invertible, we have

$$(T - \lambda I)^n = (-\lambda)^n T^n (T^{-1} - \lambda^{-1} I)^n.$$

Because T^n is invertible, it is easy to see that

$$\text{Null}(T - \lambda I)^n = \text{Null}(T^{-1} - \lambda^{-1} I)^n.$$