

$$4(3) \quad A^3 = E$$

($n=2$ or 3 is not a counterexample).

$$A = \begin{pmatrix} a & b \\ c & d \end{pmatrix} \in GL_2(\mathbb{C})$$

$$A^2 - (a+d)A + (ad-bc)E = 0$$

$$A^3 - (a+d)A^2 + (ad-bc)A = 0$$

$$(E - (a+d)A + (ad-bc)A)A = 0$$

$$0 = E - (a+d)A + (ad-bc)A + (ad-bc)(a+d)E$$

($A \neq 0, E \neq 0$)

$$(ad-bc)(a+d) + 1 = 0$$

$$-(a+d)^2 + (ad-bc) = 0$$

$$1 + (a+d)^3 = 0$$

$$(a+d) = -1$$

$$ad-bc = 1$$

$\Rightarrow \lambda, \lambda^{-1} = \lambda^{-1}$

($n=3$ is a counterexample).