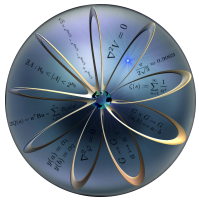

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If $A \in M_n(R)$ and A is supertriangular then $A^n = 0$

Canonical name	IfAinMnRAndAIsSupertriangularThenAn0
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theorem: Let R be commutative ring with identity. If an n-square matrix $A \in Mat_n(R)$ is supertriangular then $A^n = 0$.

proof: Find the characteristic polynomial of A by computing the determinant of $A - tI$. The square matrix $A - tI$ is a triangular matrix. The determinant of a triangular matrix is the product of the diagonal element of the matrix. Therefore the characteristic polynomial is $p(t) = t^n$ and by the Cayley-Hamilton theorem the matrix A satisfies the polynomial. That is $A^n = 0$.
QED