Theorem: Determinant of a Scaral Multiple Matrix

If A is a square martrix of order n and c is a scalar, then the determinant of cA is

$$det(cA) = c^n det(A)$$

Proof

This formula can be proven by repeated applications of Property 3 of Theorem Elementary Row Operations and Determinants. Factor the scalar c out of each of the n rows of $|cA|$ to obtain $|cA| = c^n|A|$.