ODE Homework 2 (3 %)

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Let P_n be the Legendre polynomial of degree n. Prove that $|P'_n(x)| < n^2$ and $|P''_n(x)| < n^4$ for $-1 < x < 1$.

Proof

Reference

G. Szegő, Orthogonal Polynomials, American Mathematical Society Colloquium Publications, Vol. 23, 1939.