
Zbl 060.05503

Erdős, Pál; Szegö, Gábor

On a problem of I. Schur. (In English)

Ann. of Math., II. Ser. 43, 451-470 (1942); correction ibid. 74, 628 (1961).

Let $Q_n(x_0)$ be a class of polynomials $f(x)$ of degree n such that $|f(x)| \leq 1$ for $-1 \leq x \leq 1$ and $f''(x_0) = 0$. The maximum $m_n \cdot n^2$ of $|f'(x_0)|$ for $-1 \leq x_0 \leq 1$ is attained if and only if $x_0 = \pm 1$, and $f(x)$ satisfies the differential equation of Zolotareff. Furthermore, $\lim_{n\to\infty} m_n$ and has the value 0.3124.

E.Frank

Classification:
26C05 Polynomials: analytic properties (real variables)