
Zbl 295.10014**Erdős, Paul; Vaughan, R.C.***Bounds for the r -th coefficients of cyclotomic polynomials.* (In English)**J. London Math. Soc., II. Ser. 8, 393-400 (1974).**

Let $\Phi_n(z) = \sum_{r=0}^{\varphi(n)} a_r(n)z^r$ be the n -th cyclotomic polynomial and $a_r(n) := 0$ for $r > \varphi(n)$, where φ is Euler's function. The following estimates are proved:

$$|\Phi_n(z)| < \exp(\tau(1 - |z|)^{-1} + C_1(1 - |z|)^{-3/4})$$

with $\tau := \prod_{p \in \mathbb{P}} \left(1 - \frac{2}{p(p+1)}\right)$ for each $z \in \mathbb{C}$ with $|z| < 1$, $|a_r(n)| < \exp(2\tau^{1/2}r^{1/2} + C_2r^{3/8})$, $\max_{n \in \mathbb{N}} |a_r(n)| > \exp(C_3r^{1/2} \log^{-1/2} r)$ for $r > r_0$. The second result follows immediately from the first. The third estimate requires three lemmas on the representation of numbers as sums of primes.

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Classification:

11B39 Special numbers, etc.