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8. Analysis

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Unbounded components of the normality set

Let f be a transcendental entire function and $f^n, n \in N$ denote the n-th iterate of f. The set $N(f) = \{z : (f^n)\text{is normal in some neighbourhood of } z\}$ is called the normality set or Fatou set and the complement is called Julia set. Approximation theory of entire functions has been used to prove the existence of unbounded components of the normality set with various properties. For instance we show that there exist infinitely many unbounded components of the normality set whose iterate may converge to a unique point or to infinitely many distinct points. Also we show that there exist infinitely many unbounded wandering domains having finitely many distinct paths.