

ON SOME TAUBERIAN THEOREMS

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We will give an overview of certain well-known Tauberian theorems. For example, we will discuss the Fatou-Riesz theorem.

Theorem 1. *Let $F(z) = \sum_{n=0}^{\infty} a_n z^n$ be a power series for which a_n is a sequence tending to 0. Suppose that $F(z)$ has an analytic continuation at the point $z = 1$, then the series $\sum_{n=0}^{\infty} a_n$ converges to $F(1)$.*

We will also present some recent generalizations of the classical theorems and indicate how certain Tauberian theorems can provide a short proof of the prime number theorem.

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