

Proposed problem

Let $F(z) = \sum_{n=1}^{\infty} n^p \sin(A(\ln n)^q) z^n$, p, q nonnegative integers, A real, z complex. A point $z = z_0$ is said a “point of regularity” if the Taylor series centered in z_0 exists with positive radius of convergence. Prove or disprove: $z = 1$ is a point of regularity for $F(z)$.

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Best regards
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