The subsequences of a power sequence in a Banach algebra

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We consider the covergence of the sequences a^{qn} and a^{q^n}, where a is an arbitrary element of a complex Banach algebra with the unit, and q is an integer such that $q \geq 2$.

We give necessary and sufficient conditions such that $\lim_{n\to\infty} a^{qn} = d$ exists, and give the explicit form of d. The final result of this limit has the same form as the one obtained by Chen and Hartwig [1], but we use a different method to prove it. We, also, consider the existence and the form of the limit $\lim_{n\to\infty} a^{q^n}$ for the same q.

References

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