

Kihel, Omar; Larone, Jesse

Prime rational functions. (English) Zbl 1370.11043

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Summary: Let $f(x)$ be a complex rational function. We study conditions under which $f(x)$ cannot be written as the composition of two rational functions which are not units under the operation of function composition. In this case, we say that $f(x)$ is prime. We give sufficient conditions for complex rational functions to be prime in terms of their degrees and their critical values, and we also derive some conditions for the case of complex polynomials.

Reviewer: [Reviewer \(Berlin\)](#)

MSC:

[11C08](#) Polynomials in number theory
[12E05](#) Polynomials in general fields (irreducibility, etc.)
[26C15](#) Real rational functions

Keywords:

[prime polynomials](#); [prime rational functions](#); [critical values](#); [critical points](#); [resultant](#)

Full Text: [DOI](#)

References:

- 1 M. Ayad, Critical points, critical values of a prime polynomial, *Complex Variables Elliptic Equations* 51 (2006), 143–160. · [Zbl 1091.12001](#)
- 2 A. F. Beardon, Composition factors of polynomials, *Complex Variables Theory Appl.* 43 (2001), 225–239. · [Zbl 1032.12001](#)

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