Title: An explicit André–Oort type result for $\mathbb{P}^1(\mathbb{C}) \times \mathbb{G}_m(\mathbb{C})$ based on logarithmic forms

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Using linear forms in logarithms we prove an explicit result of André–Oort type for $\mathbb{P}^1(\mathbb{C}) \times \mathbb{G}_m(\mathbb{C})$. In this variation the special points of $\mathbb{P}^1(\mathbb{C}) \times \mathbb{G}_m(\mathbb{C})$ are of the form (α, λ), with α a singular modulus and λ a root of unity. The qualitative version of our result states that if $\mathcal{C}$ is a closed algebraic curve in $\mathbb{P}^1(\mathbb{C}) \times \mathbb{G}_m(\mathbb{C})$, defined over a number field, not containing a horizontal or vertical line, then $\mathcal{C}$ contains only finitely many special points. The proof is based on linear forms in logarithms. This differs completely from the method used by the author recently in the proof of the same kind of statement, where class field theory was applied.

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