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Title: Primitive sets with large counting functions

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A set of positive integers is said to be primitive if no element of the set is a multiple of another. If $\mathcal{S}$ is a primitive set and $S(x)$ is the number of elements of $\mathcal{S}$ not exceeding x, then a result of Erdős implies that $\int_2^\infty (S(t)/t^2 \log t)\, dt$ converges. We establish an approximate converse to this theorem, showing that if F satisfies some mild conditions and $\int_2^\infty (F(t)/t^2 \log t)\, dt$ converges, then there is a primitive set $\mathcal{S}$ with $S(x) \asymp F(x)$.

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