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Number theory and elementary arithmetic

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Abstract

Elementary arithmetic (also known as ‘elementary function arithmetic’) is a fragment of first-order arithmetic so weak that it cannot prove the totality of an iterated exponential function. Surprisingly, however, the theory is remarkably robust. I will discuss formal results that show that many

theorems of number theory and combinatorics are derivable in elementary arithmetic, and try to place these results in a broader philosophical context.

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