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Kyle Riggs* (kwriggs@umail.iu.edu). *The Σ_1^1 -Completeness of the Decomposability Problem for Torsion-Free Abelian Groups.*

An abelian group is decomposable if it can be written as the direct sum of two (or more) nontrivial subgroups. Among torsion groups, the decomposable groups have previously been completely characterized. Among torsion-free groups, we show that this property is Σ_1^1 -complete, so it cannot be characterized by a first-order formula in the language of arithmetic. (Received August 24, 2013)