

Year: 2011

Vol.: 79

Fasc.: 3-4

Title: Representing integers as linear combinations of powers

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At a conference in Debrecen in October 2010 Nathanson announced some results concerning the arithmetic diameters of certain sets. (See his paper in the present volume.) He proposed some related problems on the representation of integers by sums or differences of powers of 2 and of 3. In this note we prove some results on this problem and the more general problem about the representation by linear combinations of powers of some fixed integers.

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