Algebraic normal form of a bent function: what is it? *

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Recall that Boolean functions in even number of variables that are on the maximal possible distance from the set of all affine Boolean functions are called *bent functions*. It is possible to give a definition for them applying Walsh — Hadamard transform. But what can we say about algebraic normal form (ANF) of a bent function? We try to collect here all known and new facts related to the ANF of a bent function. We deal with algebraic degrees of bent functions from different classes, classifications of ANFs for small number of variables, particular constructions of bent functions based on ANF's properties. We discuss is it possible to meet in ANF of a bent functions items of special types, how to link algebraic constructions of bent functions over fields with their ANFs and other questions.

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