MEASURES OF IRRATIONALITY

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Abstract: An algebraic variety of dimension n is called rational if it contains a Zariski open set which is isomorphic to a Zariski open in the projective space P^n. It can be extremely hard to determine if a variety is rational. Such questions are known as rationality problems and have been a centerpiece of the development of algebraic geometry. In the last decade, a complementary set of questions has come into focus: namely, given a variety whose irrationality is known, how can one measure quantitatively "how irrational" it is? I will survey recent progress on these questions with an emphasis on abelian varieties.