Abstract. We discuss a new connection between algebraic geometry and convex geometry. We explain a basic construction which associates convex bodies to semigroups of integral points. We see how this gives rise to convex bodies associated to algebraic varieties encoding information about their geometry. This far generalizes the notion of Newton polytope of a Laurent polynomial/toric variety. As an application, we give a formula for the number of solutions of an algebraic system of equations on any variety, in terms of volumes of these bodies, far generalizing the well-known Bernstein-Kushnirenko theorem. This has many interesting applications in algebraic geometry, in particular theory of linear systems. For the most part, the talk should be accessible to anybody with some background in algebra and geometry. There are many interesting problems in this area yet to be addressed.