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IN THE WORLD OF ELLIPTICAL CURVES

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The theory of elliptic curves is a combination of algebra, geometry, analysis and number theory. Elliptical curves are at the center of the last-mentioned field, as demonstrated by the spectacular proof of Fermat's last theorem twenty-five years ago. Applications have also been found in more practical fields such as cryptography, so it's safe to say that national security and modern finance depend, at least in part, on what was at one point very abstract, theoretical mathematics. These are just a few reasons why a mathematician might want to learn about elliptic curves and the operations associated with them that underlie this category of curves. One of the most famous theorems concerning elliptic curves is the theorem, proved by Mordell in 1922–1923, that for elliptic curves over the set of rational numbers Q, a group of points with rational coordinates is always finite generated. To prove this theorem, it is necessary to know and be able to reduce the degree 3 curve to the Weierstrass normal form, which is used to define the operation of adding points on the elliptic curve. Mordell also hypothesized for curves of degree greater than 3, now known as 'Faltings' theorem. She argued that each such curve has a finite number of measurable points. It was proved in 1983 by Gerd Faltings. The work is organized as follows.

With the advent of differential calculus, interest developed in studying curves and their characteristic points. In the presentation, we will examine the inflection points of smooth curves of a given degree d, especially elliptic curves, which are associated with a special curve, called the Hessian. We will prove an interesting property related to the number of these characteristic points.

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