

Thue, Axel | Encyclopedia.com

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(b Tönsberg, Norway, 19 February 1863; d. Oslo, Norway, 7 March 1922)

mathematics.

Thue enrolled at Oslo University in 1883 and became a candidate for the doctorate in 1889. From 1891 to 1894 he held a university scholarship in mathematics, and he was a professor of applied mathematics at Oslo from 1903 to 1922.

During 1890–1891 Thue studied at Leipzig under Sophus Lie, but his works do not reveal Lie's influence, probably because of Thue's inability to follow anyone else's line of thought. In 1909 he published his famous article "Über Annäherungswerte algebraischer Zahlen" in *Crelle's Journal*. In 1920 C. L. Siegel found a more precise expression for the approximation of algebraic numbers and K. F. Roth discovered the best possible equation in 1958. Nevertheless, Thue was able to draw a far-reaching conclusion in [number theory](#). He showed that an equation like $y^3 - 2x^3 = 1$ cannot possibly be satisfied by an indefinite number of pairs of numbers x, y , when x and y must be a [whole number](#). Generally formulated, the left side of the equation can be an irreducible homogeneous polynomial in x and y of a degree higher than 2, and the right side can be any [whole number](#). Thue's theorem was characterized by Edmund Landau (1922) as "the most important discovery in elementary [number theory](#) that I know."

During 1906–1912 Thue published many articles on series, in one of which he said: "For the development of the logical sciences it will be important to find wide fields for the speculative treatment of difficult problems, without regard to eventual applications." His "Über die gegenseitige Lage gleicher Teile gewisser Zeichenreihen" was characterized as a basic work by G. A. Hedlund (1967).

Thue's most important work in applied mathematics was "De virtuelle hastigheters princip" ("The Principle of Virtual Velocity"), an original statement that has no parallel in the literature. One of the paradoxes Thue liked to state was "The further removed from usefulness or practical application, the more important."

BIBLIOGRAPHY

I. Original Works. A list of 47 articles (1884–1920) is in *Norsk matematisk tidsskrift*, **4** (1922), 46–49. They include "Über Annäherungswerte algebraischer Zahlen. in *Journal für die reine und angewandte Mathematik*, **135** (1909), 284–305; "Eine Eigenschaft der Zahlen der Fermatschen Gleichung," in *Videnskabs-selskabets skrifter* (Oslo) (1911), 1–21; and "De virtuelle hastigheters princip." in *Aars Voss'skoles festskrift* (Oslo, 1913), 194–213. *Selected Mathematical Papers of Axel Thue* (Oslo,). with an introduction by Carl Ludwig Siegel. is in press.

II. Secondary Literature. There are biographies by C. Størmer, V. Bjerknæs, and others in *Norsk matematisk tidsskrift*, **4** (1922), 33–46, with portrait. Viggo Brun and Trygve Nagell published a list of his posthumous works in *Videnskabs-selskabets skrifter* (Oslo) (1923), 1–15. Also see G. A. Hedlund, "Remarks on the Work of Axel Thue on Sequences." in *Norttisk matematisk tidsskrift* (1967), 148–150.

Viggo Brun