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(*b*. Louvain, Belgium [?], 29 September 1561; *d*. Mainz, Germany, 4 May 1615)

mathematics, medicine.

Roomen’s father, for whom he was named, was a merchant; his mother was Maria van den Daele. According to the dedication of his *Ideae mathematicae* (1593), he studied mathematics and philosophy at the Jesuit College in Cologne. In 1585 he spent some time in Rome, where he met Clavius. From about 1586 to 1592 van Roomen was professor of medicine and mathematics at Louvain. He then became professor of medicine at Würzburg, where on 17 May 1593 he gave his first lecture. From 1596 to 1603 he was also “mathematician” of the chapter in Würzburg; his duties included drawing up the calendar each year. In 1598 van Roomen was at Prague, where the Emperor Rudolf II very probably bestowed the titles of count palatine and imperial court physician upon him. In 1601 he was in France for three months to recover his health, and during his stay he visited viète. Between 1603 and 1610 he lived in both Würzburg and Louvain; he was ordained a priest in the latter city at the end of 1604 or the beginning of 1605.

In 1610 van Roomen was invited to teach mathematics in Zamosc, Poland; his pupil was most likely Thomas Zamojski, son of the founder of the college in that town. During his sojourn there (September 1610–July 1612) he became acquainted with the Polish mathematician Jan Brożek, whom he met several times and with whom he conducted a correspondence. In one of his letters to van Roomen, Brożek posed two questions. The first concerned the dispute between the astronomers Giovanni Antonio Magini and David Origanus, and the second concerned a theorem on isoperimetric figures from the *Geometria* of Petrus Ramus. Van Roomen’s answer to the latter question forms the most interesting part of the correspondence and was published by Brożek in his *Epistolae* (Cracow, 1615) and in his *Apologia* (Danzig, 1652).

An important part of van Roomen’s works dealt with mathematical subjects, especially trigonometry and the calculation of chords in a circle. His first known work, *Ouranographia* (Louvain or Antwerp, 1591), is a speculative consideration on nature, specifically the number and the motion of the heavenly spheres. His *Ideae mathematicae pars prima* (Antwerp, 1593), dedicated to Clavius, was intended to be the first part of a great work on the calculation of chords in a circle and on the quadrature of the circle. In it van Roomen hoped to publish his discoveries on regular polygons; but except for some fragments, the remainder of the work did not appear. In the introduction van Roomen states that for some years he had tried to find a general rule to calculate the sides of all regular polygons. He discovered three methods, one of which used algebraic equations. For all regular polygons from the triangle up to the eighty-sided polygon he derived the equations and sent them to Ludolph van Ceulen, to whom he left the calculation of the solutions. In his work van Roomen gives, without any proof, the calculation to thirty-two decimal places of the sides of regular three-, four-, five-, and fifteen-sided polygons and of the polygons arising from the preceding by a continuous doubling of the number of the sides. He continued his calculations up to the polygon with $15 \cdot 2^{60}$ sides, and with the help of the side of the regular 251,658,240-sided polygon he calculated π to sixteen decimal places.

At the beginning of his treatise van Roomen propounded to all the geometers the famous equation of the forty-fifth degree. An ambassador from the Netherlands told Henry IV that France did not possess a single geometer capable of solving the problem. Henry sent for Viète, who at once gave a solution and, the next day, twenty-two more. In his turn Viète proposed to van Roomen the Apollonian problem: to draw a circle touching three given circles. Van Roomen published his answer in *Problema Apolloniacum* (Würzburg, 1596). He solved the problem by the intersection of two hyperbolas, but he did not give a construction in the proper sense. Viète published his own geometrical solution in his *Apollonius Gallus* (Paris, 1600).

In 1594 Scaliger published his *Cyclometrica elementa duo*, in which he tried to prove that Archimedes’ approximation of π was incorrect. At once he was attacked by several mathematicians, among them Viète and van Ceulen, as well as van Roomen in his *In Archimedis circuli dimensionem* (Geneva, 1597). The first part of this tract contained a reedition of the Greek text of Archimedes’ *On the Measurement of the Circle*, with a Latin translation and an elaborate analysis. In the second part, “Apologia pro Archimede ad clarissimum virum Josephum Scaligerum,” van Roomen refuted Scaliger’s objections to Archimedes’ tract. In the third part he refuted, in ten dialogues, the quadratures of the circle of Oronce Finé, Simon van der Eycke, Raymarus Ursus, and Scaliger.

Van Roomen also wrote a commentary on al-Khwārizmī’s *Algebra*, “In Mahumedis Algebram prolegomena,” which is now lost, the copy at the University of Louvain having been destroyed in 1914 and that at Douai in 1944. Van Roomen was partial to extensive calculations, as can be seen in his *Chordarum arcubus circuli* (Würzburg, 1602). In this work he gave, to 220 or 300 decimal places, the square roots needed for the calculation of the side of the regular thirty-sided polygon. He also wrote several works on plane and spherical trigonometry, including the *Speculum astronomicum* (Louvain, 1606) and the *Canon triangulorum sphaericorum* (Mainz, 1609). These works contain the first systematic use of a trigonometric notation.

In his terminology van Roomen imitated Viète, using the expressions “prosinus” and “transinuosa” for tangent and secant, respectively. The tables for sines, tangents, and secants, together with their co-functions, in the *Canon triangulorum* were borrowed from Clavius. A last contribution to the project developed in his *Ideae mathematicae* is in van Roomen’s *Mathematicae analyseos triumphus* (Louvain, 1609). In this work lie calculated the sides of the nine-sided and eighteen-sided regular polygons to 108 decimal places.

Besides his printed works there were manuscripts, now lost, containing unpublished works by van Roomen: the “Tractatus de notatione numerorum” and the “Nova multiplicandi, dividendi, quadrata componendi, radices extrahendi ratio.” The last, dealing with his methods for calculating with large numbers, was published in 1904 by H. Bosmans.

BIBLIOGRAPHY

The best survey of van Roomen’s life and works is the article by P. Bockstaele in *Nationaal biografisch woordenboek* (Brussels, 1966), cols. 751–765, which also contains an extensive bibliography.

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