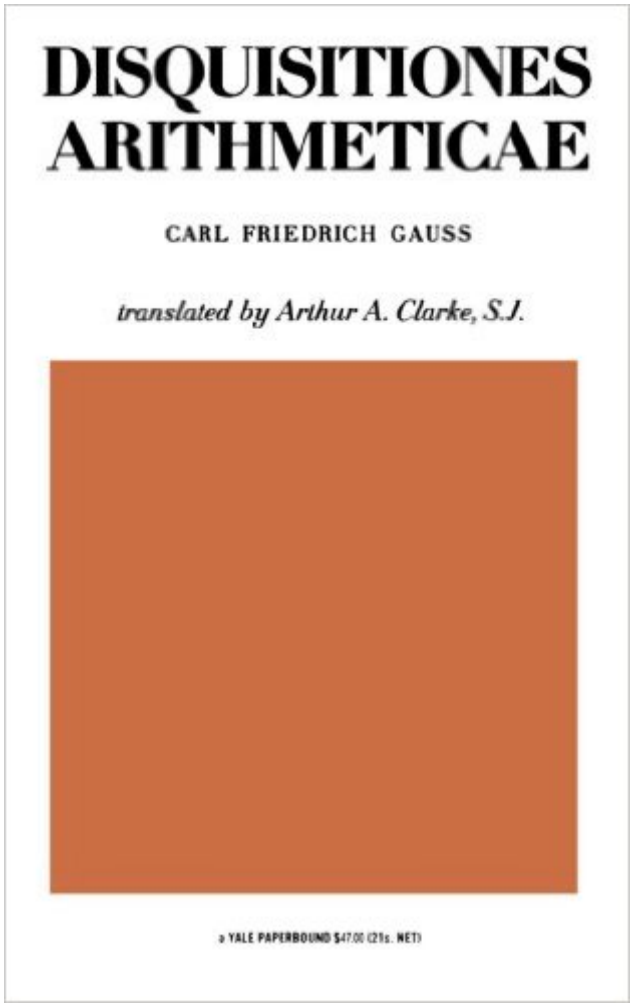
Disquisitiones Arithmeticae



Synopsis

English translation of standard mathematical work on theory of numbers, first published in Latin in 1801. "Among the greatest mathematical treatises of all fields and periods."--Asger Aaboe.

Book Information

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Customer Reviews

This is a great book. It's the place where modern number theory begins. It's also well enough written that it's enjoyable to read today.There are two editions and you have to choose carefully. I don't know whether my review will appear on both editions or just one. The softcover is only $47. The hardcover is $129, but it is a REVISED translation. A single person, who does not seem to be have been a mathematician, made the first translation from Latin in 1965. That was revised by a team of 4 scholars in 1986.That turns out to be important, because the original translator got a few things wrong, like the logic of a double negative. So there are some places where the first (cheaper, softcover, Yale) edition is either wrong or unclear. Many of these problems have been fixed in the second (more expensive, hardcover, Springer-Verlag) edition.I bought the first edition and I have no regrets, but you will get extra value for your extra money if you buy the second edition.

To add to what's been said about translation errors in the softcover edition, a very large portion of the equations in section V have been carried over incorrectly. Gauss' convention of writing indices in superscript instead of subscript seems to have confused the translator to no end, and indices on variables multiplied together were combined like exponents wherever possible. For instance, what was "t_i t_i" (variable t with an index of i, multiplied by itself) in the original Latin was converted to "t_2i" (variable t with an index of 2i). In the worst example, about HALF of the equations in articles

200-201 are incorrect as given. I haven't seen the revised edition, but I would hope this was corrected.Apart from this, there are plenty of other, scattered typos, but these are for the most part easy to catch and tolerable. The original Latin version is available for free online on the Gottingen University library website, and it may be worthwhile to keep it handy to double check the equations.As for the book itself, I cannot possibly recommend it highly enough. It was the first serious math book I ever read, and it inspired me to take up math as a profession. While the actual material covered in D.A. may be a bit outdated, it is a great window into the mind of one of the greatest mathematicians in history. It is a masterpiece, and worth the time (and $40) of any serious math student or professional.

What blows my mind about Gauss's Disquisitiones is that it is understandable to people like me who don't have an advanced background in mathematics. You just need to move through it slowly and carefully. There is a certain joy that comes along with making the discoveries that Gauss walks you through. A book that will change your outlook on life by enhancing what you see as the basic philosophy underlying numbers and mathematics. Mathemtical magicians like Euler and Lagrange will just confuse and dazzle you with their tricks, but Gauss will give you understanding.

Before reading (i.e. studying) this book, I thought Hardy's and Apostol's books on the theory of numbers were the best... Those are very good indeed but Gauss' treatment is that of a MASTER !Once you get used to the symbols, the journey is thrilling : you're dealing with a genius, willing to guide you...Don't throw your money away in buying the paperback edition, buy the hardcover edition where most of the errors have been corrected and which is much better structured and provides ample space for annotations... i.e. allow yourself a gift and enjoy it !

I've had this translation of the Disquisitiones Arithmeticae (=DA) for more than 10 years and I've paged through it many times, but I'm always disappointed. The DA is monumentally important and I'm disappointed by this edition, not the DA itself. On the one hand, Gauss doesn't use the modern objects and notation with which a mathematician will be familiar, and on the other hand, the DA is complicated enough that one can't merely read it and figure out what things mean on the spot as one can with Euler. The only thing like a commentary on the DA that exists is the collection The Shaping of Arithmetic after C.F. Gauss's Disquisitiones Arithmeticae. Aside from this, the best two works to help you understand the DA are Cox, Primes of the Form x2+ny2: Fermat, Class Field Theory, and Complex Multiplication and Lemmermeyer, Reciprocity Laws: From Euler to Eisenstein

(Springer Monographs in Mathematics). In fact, the best living writer who could translate and comment on the DA is Franz Lemmermeyer. To be useful, a translation will need heavy commentary so that a reader can connect what Gauss is talking about with the objects a modern mathematician is familiar with. Lemmermeyer has just finished editing the Euler-Goldbach correspondence with Martin MattmÃ ller. There is no better living writer on the history of algebraic number theory than Lemmermeyer.

One of the most important books in the history of human thought, and certainly among the top five in the history of mathematics, by the most important mathematician ever. I enjoy reading Gauss' own methods. Especially interesting if you study congruences, cyclotomy, etc.

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