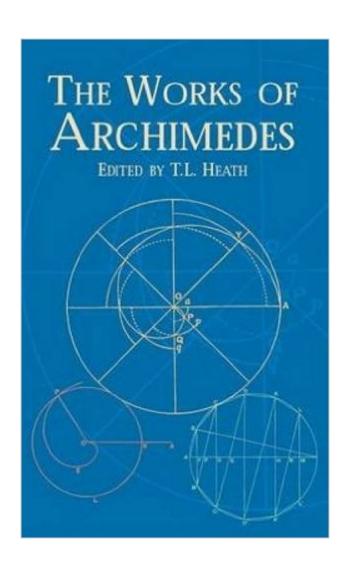
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The Works Of Archimedes (Dover Books On Mathematics)





Synopsis

The complete works of antiquity's great geometer appear here in a highly accessible English translation by a distinguished scholar. Remarkable for his range of thought and his mastery of treatment, Archimedes addressed such topics as the famous problems of the ratio of the areas of a cylinder and an inscribed sphere; the measurement of a circle; the properties of conoids, spheroids, and spirals; and the quadrature of the parabola. This edition offers an informative introduction with many valuable insights into the ancient mathematician's life and thought as well as the views of his contemporaries. Modern mathematicians, physicists, science historians, and logicians will find this volume a source of timeless fascination. Unabridged reprint of the classic 1897 edition, with supplement of 1912.

Book Information

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Average Customer Review: 4.5 out of 5 stars Â See all reviews (13 customer reviews)

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Customer Reviews

Again I feel I must post a review to counter misleadinginformation in an earlier review. The author of the the the theoretical the theoretical the theoretical the

most of the contents ofthis book. Moreover, the newly discovered material isnot in this book (but Heath's translation of the Palimpsestis). The previous reviewer is _extremely_ confused about the history. Now to the contents of the book. The famous Palimpsestactually is my favorite part. Prepare to be dazzled. Many 20th-century calculus texts, saying that integral calculus was anticipated by Archimedes in the 3rd century BC, are so phrased that they may give their readers the impression that Archimedes worked with something similar to Riemann sums, or similar nonsense. The truth is far more interesting. Archimedes used infinitesimals explicitly. His proofs were amazingly efficient.

I enjoyed the previous review, but do not wholly agree. It seemed to me the method of centers of gravity was the one by which Archimedes discovered, rather than proved, his results. His proofs do seem to me to involve limiting arguments which are at least reminiscent of riemann sums. Indeed even the method of centers of gravity involved slicing up solids in a way that to me suggests again riemann sums. Perhaps i have not read as carefully as the previous reviewer. I agree however that the works are startlingly wonderful and inspiring. The key to Archimedes' geometry solutions was the principle of parallel slices, that two figures all of whose slices parallel to a given reference line or plane have equal areas, or lengths, themselves have equal volume, or area. This is of course the fundamental theorem of calculus for equating areas, and the cavalieri principle, for equating volumes. Note it does not suffice to calculate them, merely to equate two such areas. thus Archimedes had to bootstrap up from one known area or volume to another. Thus starting from an actual decomposition of a cube into three pyramids, one sees that a right pyramid has volume 1/3 of cube. Then by parallel slices one sees the same for any pyramid or cone. then by taking complements one computes the volume of a sphere, by showing that horizontal slices of a cone and a sphere add up to the slice of a cylinder. Knowing cylinder and cone volume thus gives a sphere's volume. Finally one of the hard problems we give students is finding the volume of a bicylinder, the intersection of two transverse cylinders.

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