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Joseph W. Dauben* (jdauben@att.net), Department of History, Herbert H. Lehman College, CUNY, 250 Bedford Park Blvd. West, Bronx, NY 10468. *Ancient Chinese Methods for Determining Square Roots, the Areas of Circles, and Volumes of Pyramids and Spheres.*

The history of ancient Chinese mathematics offers numerous ingenious methods for approximating square roots and determining the areas of circles and volumes of pyramids and spheres, all of which involve aspects of the infinite in various ways. As early as bamboo texts from pre-Qin times to the edition of the comprehensive mathematical classic, the *Nine Chapters*, along with its third-century commentary by Liu Hui, methods evolved from early approximation techniques to arguments offering detailed proofs of the correctness of the results obtained. Diagrams and models served as guides, and precise algorithms could be checked to verify that the results obtained were indeed correct. How these elements of the mathematician's toolkit combined to provide rigorous arguments will be discussed with examples drawn from bamboo texts like the *Shu* (Numbers) and *Suan shu shu* (Book of Numbers and Computations), as well as the *Nine Chapters*. (Received September 12, 2014)