

SAW Seminar: Mathematical practices in the context of the astral sciences

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Precision and Approximation in Ancient Greek and Medieval Islamic Mathematical Astronomy

Abstract: In ancient Greek and medieval Islamic mathematical astronomy, computation according to geometric methods was considered to be ideal. But this is not always possible. Sometimes the mathematical problem is inherently unsolvable with a restricted tool set; in other cases the problem is simply so difficult that solutions without the advantage of symbolic algebra are simply out of reach. In these cases, approximations or iterative solutions (likely borrowed from India) were available. Several examples from the works of Ptolemy and several Arabic writers illustrate the line that some astronomers were willing to cross, but others were not.