1046-01-719 **Jacqueline Feke*** (jackie.feke@utoronto.ca), Toronto, ON , Canada. *Ptolemy's Indisputable Mathematical Tools.*

In both the Harmonics and the Almagest, Ptolemy describes arithmetic and geometry as indisputable. Their kinds of proof proceed by indisputable methods, and they serve as indisputable tools for at least two branches of mathematics: harmonics and astronomy. These branches of mathematics, harmonics and astronomy, each rely on a single indisputable mathematical tool. Harmonics utilizes arithmetic ratios, and the eccentric and epicyclic spheres that Ptolemy posits in his astronomical hypotheses derive from geometry. Despite their use of indisputable tools, Ptolemy's hypotheses of harmonics and astronomy are not equal in their claims to truth. The text of the Harmonics indicates that Ptolemy believed in the truth and precision of his harmonic hypotheses, but the Almagest reveals that, while Ptolemy believed that his astronomical hypotheses were as precise as possible, he considered only certain aspects of the hypotheses to be true. In this paper, I argue that the crucial dissimilarity between Ptolemy's harmonics and astronomy that differentiates their claims to truth is exemplified by their relationship to the indisputable mathematical tools, arithmetic and geometry. (Received September 10, 2008)