Mathematics 3830H – A Survey of the History of Mathematics TRENT UNIVERSITY, Winter 2025

Assignment #5 The Quadratic Formula Due on Friday, 21 March.*

Please read at least pp. 35–39 of the $\bar{A}ryabhat\bar{i}ya$ [1] and pp. 1-21 of al-Kwarizmi's Algebra [2], and do the following problems. You may find the discussion and commentary made by the translator to be of use in answering the questions, but don't accept them uncritically: in both cases previous translators and commentators get criticized ...

- 1. State and prove the quadratic formula in modern algebraic notation. [3]
- 2. Compare and contrast Aryabhata's and al-Kwarizmi's understandings of the quadratic formula, as given in the readings, with each other and with our understanding. [7]

Reference

1. *Āryabhatīya*, by Āryabhata, trans. by W.E. Clark, Univ. of Chicago Press, Chicago, 1930. It can be found online at

http://www.wilbourhall.org/pdfs/aryabhatiyaEnglish.pdf or locally on Blackboard.

 The Algebra of Mohammed ben Musa [i.e. al-Kwarizmi], ed. and trans. by Frederic Rosen, London, 1831. It can be found online at http://www.wilbourhall.org/pdfs/The_Algebra_of_Mohammed_Ben_Musa2.pdf or locally on Blackboard.

^{*} Please submit your solutions, preferably as a single pdf, via Blackboard's Assignments module. If that fails, please submit them to the instructor on paper or via email to sbilaniuk@trentu.ca as soon as you can.