

Mathematics 3810H – Ancient and classical mathematics

TRENT UNIVERSITY, Fall 2011

Assignment #5

Due on Monday, 28 November, 2011.

Big Numbers

Read through the description in the text of how the Greek number system ordinarily used in classical times worked and also through T.L. Heath's translation of Archimedes' *The Sand-Reckoner*.

1. Compare and contrast the usual Greek number system with those used in ancient Mesopotamia and Egypt. What are the advantages and disadvantages of each? [10]
2. Summarize the state of astronomical knowledge in Archimedes' time, as revealed in *The Sand-Reckoner*. How are the facts and figures about the solar system given by Archimedes different from our present understanding of them? [10]

Bonus. How many Archimedes' standard grains of sand would it take to fill up the solar system as we understand it today? [1]