2019 Academic Super Bowl
Senior Math
Final Study Guide
The Fertile Crescent

King Tutankhamun

I. Numeration Systems - 12%
   - A. Binary and Sexagesinal Number Systems
   - B. Convert to and from base 10
   - C. Add and subtract in base 2 and base 60

II. Geometry - 28%
   - A. Circles
     1. Sectors and segments
     2. Angle measure and arc lengths
     3. Equations of circles
   - B. Right triangles
   - C. Lateral area, volume and lengths in right solids
   - D. Volume of the frustum of a square pyramid

III. Trigonometry - 24%
   - A. Basic functions
   - B. Solving right and oblique triangles
   - C. Simplifying trig expressions using identities (basic and double-angle)
   - D. Solving trig equations

IV. Polynomials and Factoring - 20%
   - A. Polynomial expressions (all operations)
   - B. Factoring expressions
     1. Standard methods of factoring (2nd and 3rd degree)
     2. Factoring via synthetic division
     3. Finding zeros of polynomial functions
     4. End behaviors of graphs of polynomial functions

V. History - 16%
   - A. Ancient Bablylonian Mathematics
     (all questions will come from MacTutor History Topics with the 6 articles below)
     1. An overview of Babylonian mathematics
     2. Babylonian numerals
     3. Pythagoras's theorem in Babylonian mathematics
   - B. Ancient Egyptian Mathematics
     1. An overview of Egyptian mathematics
     2. Mathematics in Egyptian Papyri
     3. Egyptian numerals

Note: The source used for the History topics can be found through Google: MacTutor History of Mathematics; then click on History Topics Index.

2019 Outlines were developed by coaches who chose to share ideas at the 2017 Academic Coaches Conference and through email, and further developed by question writers.

Only the TI-30XA and TI-30XIIS may be used during competitions.