

MATH 160 FIRST MIDTERM**September 24, 2003 H. Wu****Your Name:** _____

1. (15%) Describe the numeral system of the Babylonians. Compute $\frac{1}{48}$ as a “decimal” in that system. (Use “;” as the symbol for the “decimal point”.)

2. (25%) (a) What did the Greeks of the fifth century B.C. mean by two line segments \overline{AB} , \overline{CD} being *commensurable*? (b) Why were they interested in the hypothesis that any two segments are commensurable? (c) What was Eudoxus' contribution in this area? (**Be as precise as you can.**)

3. (40%) For each of the following items, write a few sentences for its identification and its significance in the context of the history of mathematics. Be as specific as possible.

(a) Alexander the Great.

(b) Plimpton 322.

(c) Nine Chapters on the Mathematical Art.

(d) The Fifth Postulate.

(e) A cylinder circumscribing a sphere.

(4) (20%) Let p , h , d , be the sides of a regular pentagon, a regular hexagon, and a regular decagon inscribed in a fixed circle, respectively. Show that they form the sides of a right triangle.