

HISTORY OF MATHEMATICS – MA 330(001) – PROF. CORSO – SPRING 2006
STUDY GUIDE FOR QUIZ # 1 — **Egyptian and Babylonian mathematics**

1. In a typical ancient civilization, would you say that mathematics was the domain of specially trained priests and scribes? or was it taught to everybody?
2. Would you describe extant papyri and tablets containing Egyptian and Babylonian mathematics as teaching documents to provide “trainee” scribes with a set of example-type problems or would you rather say that scribes were trying to transmit rigorous proofs of their mathematical knowledge?
3. Which are the major sources from which we gather information about Egyptian and Babylonian mathematics? What do they contain?
4. Describe the Egyptian number system and their method to multiply numbers. What about their calculus of fractions?
5. What was the scribe procedure in Problem 3 of the Rhind Mathematical Papyrus to divide 6 loaves of bread among 10 men?
6. Could Egyptian solve linear equations? Give some examples. What is a false position argument?
7. What can you say about Egyptian knowledge of areas and volumes? Do you recall a few “formulas” they used?
8. From which sources do we gather our knowledge of Babylonian (\equiv Mesopotamian) mathematics? In how many major periods can we divide these sources?
9. What is so special about the method of computation of the Babylonians? What does it mean that they used a place value system?
10. What does it mean that Babylonian geometry is based on the cut-and-paste geometry of surveyors?
11. What does it mean that Babylonian scribes would present “formulas” of geometric objects in terms of coefficient lists? Give some examples.
12. Which approximation for π did Egyptians and Babylonians (implicitly) use?
13. Describe the geometric procedure that Babylonians used to approximate \sqrt{N} . Which approximation for $\sqrt{2}$ did they obtain?
14. What does the Plimpton 322 tablet contain?
15. What is a primitive Pythagorean triple?
16. Describe the geometric method that Babylonians used to solve the system of equations
$$x + y = b \quad xy = c.$$
17. Which geometric interpretation can be given to the Babylonian solution of
$$x^2 + bx = c$$
(that is what we call a quadratic equation)?