

**STUDY GUIDE FOR EXAM 1**  
**Math 320: Math for Elementary School Teachers**  
**Note: you can bring this sheet to the exam if you like.**

Exam 1 will cover Chapters 1 and 2 of the Parker-Baldrige book. It will also cover all your notes, the homework, the quiz, and my web-page. The test is 50 minutes long and it is worth 50 points. It has two parts with very different instructions.

**PART 1:** The first part is modeled after the quiz, it is 20 minutes long and is worth 20 points. It consist of 10 questions that must be solved mentally, without the use of scratch-paper. Answers are either right or wrong and no partial credit will be given. You shall not show your work. Problems that might appear are: additions, subtractions, multiplications, and divisions, averages, computing tips, converting numbers between base 10, 2 and 16. **Time management:** you have 2 minutes per question.

**PART 2:** The second part is 30 minutes long and is worth 30 points. It consists of 6 questions, worth 5 points each. **Time management:** you have 5 minutes per question.

1. The first question will test your knowledge of the textbook and will involve some of the main concepts to be found in the lectures. To prepare for this question reread Chapter 1 and 2 of the book and review the key concepts that you listed for Homework 2 and 3.
2. The second question will ask you to come up with a word problem to illustrate an algebra fact, and to draw a diagram that goes with it.
3. The third question will give you a word problem and ask you to write down a “teacher’s solution” (see pages 54-55-56 of the Parker-Baldrige book).
4. The fourth question will ask you to explain a concept as if I were an elementary student. I will choose the concept out of the following three “teaching problems”:
  - (a) Explain the place value process and give an example of a problem that requires re-bundling.
  - (b) State the Quotient-Remainder Theorem and explain it using a measurement or set model.
  - (c) Explain the associative property of multiplication and illustrate it using the “sub-division model” of multiplication. (This is not in the book, but I mentioned it in class).
5. The fifth question will be a “pennies game” question. You are asked to draw a picture and explain your reasoning.
6. The sixth and last question will be a “parenthesis challenge” (or arithmetic expression) similar to the ones given in the Homework. Do not use the algorithms for multiplication and division that you learned in school. Use instead the mental strategies we have learned so far. Write each step down carefully and indicate your method.