STUDY GUIDE FOR EXAM 2
Math 320: Math for Elementary School Teachers
Note: you can bring this sheet to the exam if you like.

Exam 2 will cover Chapters 3 and 4 of the Parker-Baldridge 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, algebraic expressions. **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 3 and 4 of the book and review the key concepts that you listed for Homework 4, 5, and 6.
2. The second question is a long division. Show your estimates at each step.
3. The third question will give you a word problem and ask you to write down a "teacher's solution" which includes a bar diagram and the relevant algebra.
4. The fourth question asks you to simplify an expression involving exponents.
5. The fifth 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 multiplication by 1-digit numbers with rebundling, see page 68.
   (b) Explain with the measurement approach how the division algorithm works for $945 \div 7$, see page 75.
   (c) Explain how to simplify the expression $3a + 5 + 2a - 2$ using a set model, see page 92.
   (d) Explain the identity $(x + 1)^2 = x^2 + 2x + 1$ using the distributive property and a diagram, see page 98.
6. The sixth and last question will be a "parenthesis challenge" (or arithmetic expression) involving powers. Write each step down carefully and indicate your method.