

STUDY GUIDE FOR EXAM 3

Math 320: Math for Elementary School Teachers

Note: you can bring this sheet to the exam if you like.

Exam 3 will cover Chapters 5 and 6 (6.1-6.4) 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. **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 7 questions. **Time management:** you have roughly 4.5 minutes per question.

1. The first question (5pts) 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 5 and 6 of the book and review the key concepts that you listed for Homework 7, 8, 9, and 10. Learn the Definitions in the blue boxes!!!
2. The second question (5pts) asks you to give a “picture proof” and “algebra proof” of a simple fact as in ”An odd plus an even is odd” .
3. The third question (6pts) asks you to give a full ”Teacher Solution” to a couple of word problems, using both a bar diagram and algebra (introducing variables etc...).
4. The fourth question (3pts) asks you to give an algebra proof of a divisibility test (see page 116).
5. The fifth question (2pts) asks 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) Illustrate how to multiply $\frac{4}{5} \times \frac{2}{3}$ using an area model, see page 145.
 - (b) Illustrate how to add $\frac{4}{5} + \frac{2}{3}$ using an area model, see page 140.
 - (c) Illustrate with a bar diagram the partitive interpretation for $13/4 \div \frac{1}{2}$, see page 147.
6. The sixth question (4pts) gives you a number and asks you to use the Primality Test (p. 122) to determine if it is a prime.
7. The seventh question (5pts) will be a “parenthesis challenge” (or arithmetic expression) involving fractions. Write each step down carefully and indicate your method.