

Math 211, FINAL EXAM Review

THE FINAL TIME IS Monday December 7th, 12-1:50 p.m.

LOCATION OF 211 EXAM-- MNB 110

- You may bring two 3" x 5" note cards with notes on both sides to the exam.
- You may not use a calculator on Part One of the exam.
- You may use a calculator on Part Two of the exam.
- The Final Exam is a mix of true-false, multiple choice and short answer questions
- You may use your personal manipulative kit during the exam
- You may not use a cell phone or any other electronic device during the exam.

CONCEPTS TO KNOW

- Problem Solving: Know what the Polya Four Steps are and how to use them
- Problem Solving: Recognizing and extending patterns.
- Set sorting and set operations (element, subset, intersection, union)
- Properties of addition, subtraction, multiplication and division of whole numbers, integers and subsets of whole numbers and integers—closure, associative, commutative, identity
- Arithmetic Sequences, Geometric Sequences, the method of Finite Differences
- Base modeling, understanding digits, place values and numerals
- Basic logic, distinguishing between valid and invalid arguments using Venn Diagrams, re-writing conditional phrases using converse, inverse and contrapositive.
- Adding, subtracting and multiplying in various bases with base pieces
- Converting base 10 numbers to other bases (such as base 60)
- The 3 subtraction settings: Comparison, Take Away and the Missing Addend—how to recognize them and work *with them*
- Base piece models for multiplication, Partial Products for multiplication and how they relate to the base 10 multiplication model and the standard multiplication algorithm
- The three division models: Sharing, Measurement and Array—how to recognize them and work with them
- The concepts of factor, divisibility and multiple and how to write this symbolically (i.e. $a | b$).
- Prime factorization and how it relates to the number of overall factors in a number
- The concept of Least Common Multiple, what it means, how to compute it, how to apply it and its relationship to GCF
- The concept of Greatest Common Factor, what it means, how to compute it, how to apply it and its relationship to LCM
- Divisibility tests for 2, 3, 4, 5, 6, 9, 10 and 11, what they are and how to apply them
- Black and Red tile models for integer addition, subtraction, multiplication and division; how to use them, what they mean.

- Fraction bar models for fraction simplification, as well as the operations of fraction addition, subtraction, multiplication and division; how to use them and what they mean.

REVIEW SUGGESTIONS

- Practice by redoing all of the problems that correspond to the list above from EXAMS I & II. Don't' just read over them, actually redo them.
- Additionally, study all the chapter 5 concepts of Integer Operations and Fraction Operations
- Practice all of the no calculator problems on the NEW Skills Practice handouts (linked on week 9)
- Practice all of the Math 211 Final Exam Review Problems linked to your class webpage on Thursday during the last week of class.
- Find more problems from the text, class or homework that "match" the problems you find listed above. If you find a topic you are unsure of, find several problems and PRACTICE until you are comfortable with them; just reading over problems is not practice—you have to write them out without looking at the solutions.