**Math 211, FINAL EXAM Review**

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**THE FINAL TIME FOR ALL SECTIONS IS 10 – 11:50 a.m.**

**LOCATION OF 211 EXAM—Burton**
**MNB 104—Room next to our usual room**

- You may bring one 3" x 5" note card 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
- Graphing and finding equations of lines, including finding equations of lines given any two points on the line, parallel and perpendicular lines, simplifying algebraic expressions, equalities and inequalities
- 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 wit***h 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

**REVIEW SUGGESTIONS**

- Practice Problems: Chapter Five Test, page 336
  # 1 – 4, however, this is not enough practice, refer to class handouts, homework problems, activity set activities and homework and make up your own examples and see the list above
- Practice by redoing all of the problems that correspond to the list above from EXAMS One & Two. Don't' just read over them, actually redo them.
- Practice all of the no calculator problems on the Skills Practice handout (week 9)
- Practice all of the Math 211 Final Exam Review Problems linked to your class webpage on Tuesday 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.