MA 308

Exam #2 Review

March 10, 2011

1. Review the Ongoing Course Notes on the course website, `http://www.ms.uky.edu/~lee/ma308sp11/ma308sp11.html`.

2. Review all of the problems worked on in class and on homework. *Be sure you know how to explain the reasoning behind all of the solutions.*

3. Keep in mind that on the exam I may ask questions that are related to the understanding of the problems we examined in class, but are not necessarily exactly the same problems. So understanding the particular problem solving strategies used in their solution will be important.

4. Animal Problem. Know how to analyze this problem using algebra.

5. Spreadsheets. Know how to recognize explicit and recursive formulas in spreadsheet format. Don't forget the order of operations!

6. Chocolate Problem. Know how to solve this problem, including under the assumption that both girls ate whole pieces of candy.

7. Crawling Snail Problem. Know how to solve this problem the case of particular amounts of climbing and slipping back.

8. Know how to solve the Tiling Pool problem, and how it leads to equivalent expressions.

9. Know how to solve the Community Pool problem, and how it leads to geometric interpretations of algebraic expressions.

10. Know how to make and use geometric representations for expressions like $(2x+3)(x+4) = 2x^2 + 11x + 12$.

11. Know how to solve the Painted Cube Problem.

12. Know how to recognize linear, quadratic, and exponential functions from tables, formulas, and graphs.

13. Know how to solve problems involving proportional and inversely proportional quantities.

14. Know how to construct polynomials from a given set of roots.

15. Know how to solve the fencing problem, with and without calculus.

16. Know how to solve the Soda Can problem, with and without calculus.

17. Know how to represent $(1 + x)^3$ with a three-dimensional model.

18. Know how to extend tables to correspond to linear, quadratic, and exponential functions, and how to obtain the formulas from the resulting tables.

19. Know how to represent $x^2 - 9 = (x + 3)(x - 3)$ with a geometric diagram.