MTHT 467 **Problem Portfolio** **Spring 2010**

The problem portfolio is 20% of your final class grade.

Pick eight problems from the assigned problem sets for which you can claim to have made considerable mathematical growth this semester. Each choice should be from a different problem set. Only three people from the class may choose any particular problem. You need to sign up for your choice as soon as you know it. **NOTE:** You are still responsible for learning how to solve all of the problems. They may appear on quizzes without warning. Any problem presented in class may appear on exams.

Write a teacher-perfect explanation about each step of the problem solving process:

- Understanding the problem – this includes stating the problem and discussing in your own words what is intended,
- Strategy or strategies – explicitly state what strategies you used to solve the problem.
- Complete solution – carefully include all steps in carrying out your strategies to arrive at the correct answer. Include diagrams, tables, graphs – whatever is needed.
- Follow-up – address some of these questions. You should choose different questions to address with different problems as seems appropriate. What did you learn? Why did you choose this problem? How does this problem relate to others that you have done? How does it relate to the course as a whole? Who or what resources helped you I figuring it out? Are there other ways to solve the problem? How might the problem be extended? Make-up some related problems. How might you use these problems in your classroom? Are there connections to the middle school curriculum? What about Illinois or National standards?

Most people need 2 or 3 pages of work to complete one problem in this way.

Be prepared to present your solution to the class within a 5-10 minute period. The presentation should include comments on all four steps. We will be doing presentations of problems throughout the semester. Problems may be presented more than once, by different people, to show alternate strategies. Which problem(s) you present will be determined by the instructor. You may present more than once for a higher grade or for the fun of it.

DUE DATES: The first two problems are due by January 29, the next three by February 19 and the last three plus any revisions by April 16. **IMPORTANT:** This is a project and should be thought of as one whole – not eight different things. Turn in all eight problems on April 16– even those that have been previously graded.

Grading: (50 points total)
40 points: Each problem will receive 5 points, one each for satisfactory work on
- Understanding of problem
- Strategies – including evidence that the strategy was carried out
- Successful conclusion (right answer)
- Follow-up
- Explanation

10 points: Choice of problems as a whole that shows evidence of mathematical growth.
Presentation is part of the Presentation and Teaching grade and will be graded on the same five points.

WARNINGS: It is good to get ideas and inspirations from other people. However, work that bears strong resemblance to another's work will lose points. If you work with others, make sure you write up your own version of the problem and reference other people's work as warranted. If you take ideas from a class presentation do not use the problem yourself unless you reference the presentation and make further contributions to the discussion of the problem. If you use work from any source, reference that source.