

Journal and Portfolio Assignments for Mathematics 396

1. Journal Assignments and Problem-Solving Summary

There will be **five** journal assignments during the term. There are five articles on **e-reserve** in the library, under Math 396. For each assignment, please read the specified article carefully and then do the following:

- Type a $\frac{3}{4}$ -1 page summary of the article. (Single-spaced)
- Describe in some detail the most important points or ideas of the article,
- Give your reaction to the article. In particular, answer the following questions:
 1. Did you like the article?
 2. What ideas would you carry into your classroom from this article?

The due dates for the Journal Assignments will go as follows:

Journal 1 (*7 Things I Learned about Teaching...*) is due on 4/11/2006 in class.

Journal 2 (*A Problem-Solving Alternative to....*) is due on 4/25/2006 in class.

Journal 3 (*Balloons on the Rise:...*) is due on 5/9/2006 in class.

Journal 4 (*Another Look at Word Problems*) is due on 5/23/2006 in class.

Journal 5 (*The Art of Asking Thought*) is due on 6/9/2006 in class. (SEE WEB PAGE). Link is

http://hub.mspnet.org/media/data/TheArtOfGeneratingGoodQuestions.pdf?media_000000002048.pdf)

You will be assessed according to the following ***journal rubric***:

- ❖ **Completeness:** 0-2 (minimal or ineffective), 3-5 (some components missing), 6 (complete and well-developed)
- ❖ **Clarity:** 0-2 (minimal), 3-5 (in development), 6 (excellent)
- ❖ **Proper usage of language and neatness:** 0-2 (in development), 3 (easy to read and flawless)

The **Problem-Solving Summary** will be a one-time writing assignment. More details are provided in the course pack and some verbal directions and explanations will be given in class. It is due on 04/24/2006 in class.

2. Portfolio Assignments

There will be **six** portfolio assignments during the term. These will be problems that each of you is going to write with the task of illustrating a particular prescribed problem solving strategy. These problems should have **at least three** different mathematical steps to them! They should be fairly difficult. Try to make the problems **interesting** and **relevant** to children's lives, and thus useful for you upon entry into the teaching profession. You may use the Math Forum packet as a reference for what makes a good problem.

Have fun and use your imagination!

INSTRUCTIONS: Write your very own multi-step story problem that can be solved and will be solved most effectively using the prescribed problem solving strategy below:

- a. **Portfolio 1** due on 4/14/2006: draw a diagram or use a picture (choose one of these strategies or the other!)
- b. **Portfolio 2** due 4/14/2006: make a list of all the possibilities or eliminate possibilities (choose one of these strategies or the other!)
- c. **Portfolio 3** due 4/28/2006: guess and check
- d. **Portfolio 4** due 4/28/2006: use sub-problems or patterns (choose one of these strategies or the other!)
- e. **Portfolio 5** due 5/12/2006: use algebra
- f. **Portfolio 6** due 2/12/2006: use Venn Diagrams

Please organize your writing in the following format: **Problem, Prescribed Strategy, Solution, Verification, Comments for Teachers**. The **Comments for Teachers** section can include ideas for (a) extending or generalizing the problem, or (b) reflective comments about which topics this problem illustrates within the K-12 mathematics curriculum.

The entire portfolio problem is assessed on a scale of 25 points.

Prescribed Strategy: Two (2) points are given for specifying which problem solving strategy your problem is illustrating.

Problem: Ten (10) points are given for this section of the assignment which contains the wording of the actual problem:

- Two (2) points are given for a problem that can be best solved using the prescribed strategy in the assignment.
- Two (2) points are given for writing a problem that illustrates an important mathematical idea.
- Three (3) points are given for an interesting story.
- Three (3) points are given for clarity and good use of language.

The remaining thirteen (13) points are assigned as follows:

- Six (6) points for a complete and correct **Solution**.
- Four (4) points for **Verification**.
- Three (3) points for the **Comments for Teachers** section.

IMPORTANT: Please **staple** one of the appropriate scoring sheets from your course pack to each of your portfolio assignments: