You have been assigned to Group 1. Please sit in the front of the class on the window side.

Names of your fellow group members:

Discuss the following problems with your group members. Each of you will submit your answers individually. You will be graded on participation in the group discussion, as well as the work you turn in. Do not worry if you do not complete the worksheet; I am grading the thought you put into this assignment rather than the speed with which you complete it.

**Part I: The Results of our Grade Percentage Election**

Use the Election Results and Possible Grade Scheme sheets to do these problems.

1. It seems clear that Scheme X is the favorite scheme of the class. By how much more do you think the class favored it than the other schemes, a great deal or only a little? Cite specific evidence that backs up your opinion.

2. We noted in class that the schemes X, Y, and B all seemed to do the best, and we theorized that this was due to the fact that they share the 15% Final Exam. How do you think the class felt about the 24% Final Exam and 30% Final Exam? How important do you see the Final Exam Percentage being in people’s votes? Use specific results that demonstrate your answer.
3. Suppose that the Math Department ruled that 15% was too low for a final exam. Given our election, what grading scheme would you recommend? What evidence supports your view? What evidence detracts from your argument, and why does it not change your opinion?

4. Which of these voting methods gives results that you feel best represent “the will of the class”? What about the data do you find so convincing? Do you think that this voting method is “the best” or that it just happened to work out well in our particular setting? Why?

Part II: Voting in Urbana

5. Last class, David mentioned that a group of Urbana citizens is petitioning to change the voting system in Urbana (for city-level officials) from Plurality Voting to the Hare System. Do you think this is a good idea? Why or why not?
6. Read the Home page and General Information page of the IRV for Urbana website that I have printed for you. Explain why the Instant Runoff Voting (IRV) system proposed by this group is, in practice, the same as the Hare System that we studied in class on Wednesday.

7. The IRV for Urbana Home page claims that Plurality Voting “discourages many citizens from running for office, unfairly handicaps third party candidates, and allows winners to hold office with less than a majority of votes cast!” Do you agree with this statement? What evidence supports it? What evidence contradicts it?

8. The Home page also describes IRV (or the Hare System as your textbook calls it) as “more dynamic and democratic” as well as more “participatory and positive”. Again, do you agree? What evidence is there for and against this claim?
9. Evaluate the argument made on the General Information page in favor of the IRV system. Do you find it convincing? What evidence did they use that you found compelling? What evidence might an opponent of this motion use to counter this argument?

10. Specifically consider the sections on Tactical Voting and Parties and Candidates. Do you agree with the opinions voiced in these sections? How could we mathematically evaluate these claims?

11. After reading this material and discussing with your group, have you changed your opinion from how you answered Problem 5? Why or why not?
Part III: Understanding the Weak Version of Arrow’s Impossibility Theorem

12. Your textbook proves a portion of the Weak Version of Arrow’s Impossibility Theorem starting on the bottom of page 356, but mostly on page 359. Read through this proof with your group and help each other to understand each of the steps. How could you use this argument to finish the remaining two cases (that B and C are also non-winners)?

Part IV: I Really Didn’t Expect You to Get This Far in Only Fifty Minutes

Discuss with your group the homework problems due Monday. Maybe they have some insight on the problems that are troubling you. Maybe several heads will prove better than one for solving the more difficult problems.