

Math 118 E1

Exam #3 Review

This is NOT necessarily a complete list of topics that you should know. Consult your class notes to see what we have covered, and meet with me to discuss any material that you do not understand.

Chapter 12

1. Understand how voting with a preference list works.
2. Determine the winner of an election using plurality.
3. Determine the winner of an election using Borda count.
4. Determine the winner of an election using sequential pairwise voting.
5. Determine the winner of an election using the Hare system.
6. Discuss CWC, IIA, Pareto, and Monotonicity.
Know what they mean and a voting system that fails each one.
7. Know Kenneth Arrow's Impossibility Theorem.
8. Determine the winner of an election using approval voting.

Chapter 13

1. Use the notation $[q : w_1, w_2, \dots, w_n]$ to describe a weighted voting system.
2. Identify winning, losing, and blocking coalitions.
3. Determine whether a dictator exists in a weighted voting system.
4. Determine whether anyone has veto power in a weighted voting system.
5. Calculate the Banzhaf Power Index for a weighted voting system.
6. Identify minimal winning coalitions.
7. Determine whether two weighted voting systems are equivalent.
8. Find the pivotal voter in a permutation.
9. Calculate the Shapley-Shubik index for a weighted voting system.