

MATH 1340 – Problem Set 4

Due Tuesday, July 7, in class.

1. Do problems 4.8, 4.12 in Chapter 4 of Robinson & Ullman.
2. Do problem 5.4 in Chapter 5 of Robinson & Ullman.
3. (Based on Exercise 5.5 in R&U.) Consider the following **best-of-two** social choice function (for at least 3 candidates): If a majority of voters prefer A to B, A wins, regardless of how they rank the other candidates. If a majority of voters prefer B to A, B wins, regardless of how they rank the other candidates. If exactly half of the voters prefer A to B, then A and B both win in a tie.
(a) Letting A be Gore, B Bush, and C Nader, apply this method to the profile:

1,893,313	1,019,477	2,329,802	582,451	97,488
Bush	Bush	Gore	Gore	Nadar
Nadar	Gore	Nadar	Bush	Gore
Gore	Nadar	Bush	Nadar	Bush

- (b) Is this method neutral?
- (c) Show that this method (in general) is independent. (Don't forget that you need to consider all pairs of candidates when verifying this; there are cases.)
- (d) Is this method Pareto?