

Discrete Math Graph and Election Theory Review

Name: _____

Preference	Number of Ballots				
	8	10	14	3	10
1 st	C	D	C	A	B
2 nd	A	A	B	D	C
3 rd	B	B	D	B	A
4 th	D	C	A	C	D

- a) How many votes are needed to have a majority?
- b) Who wins using the plurality method?
- c) Who wins using the plurality with elimination method?
- d) Who wins using the Borda count method?
- e) Who wins using Pairwise comparison?
- f) Is Condorcet's Criterion satisfied when a Borda count election is used? Why?
- g) Is the majority criterion satisfied when a Borda count election is used? Why?

In a weighted voting system described by [12: 10, 9, 4], find all possible coalitions, the weight of each coalition, whether the coalition is winning or not, and which voters are critical. Then find the BPI of each voter.

Coalition	Weight	Winning?	Critical Voters

Banzhaf Power Index (BPI)

A	B	C