

Worksheet ~~#4~~ #5
 September 7, 2018
 2 Points

Circle one name.

Name: Solutions Name: _____ Name: _____

1. True or false: If B is a Majority Candidate then B will *always* win using the Plurality Method. If true, explain why. If false, create an example of a preference schedule in which B is a Majority Candidate but B loses using the Plurality Method.

True: Plurality dictates that the winner gets the most 1st-place votes. If candidate B has over 50% ~~of~~ of the 1st-place votes (making B the majority candidate), no other candidate can receive more votes. Therefore, If B is a majority candidate, it will always win using the Plurality Method.

2. True or false: If B is a Majority Candidate then B will *always* win using the Borda Method. If true, explain why. If false, create an example of a preference schedule in which B is a Majority Candidate but B loses using the Borda Method.

False:

8	9	18
A	A	B
C	B	A
B	C	C

 A is the winner, but B is the majority candidate

Even more simple:

2	3
A	B
C	A
B	C

$$\begin{aligned} A: 2(3) + 3(2) &= 12 \\ B: 2(1) + 3(3) &= 11 \\ C: 2(2) + 3(1) &= 7 \end{aligned}$$

$$A: 8(3) + 9(3) + 18(2) = 87$$

$$B: 8(1) + 9(2) + 18(3) = 80$$

$$C: 8(2) + 9(1) + 18(1) = 43$$

3. True or false: If B is a Majority Candidate then B will *always* win using the Plurality with Elimination Method. If true, explain why. If false, create an example of a preference schedule in which B is a Majority Candidate but B loses using the Plurality with Elimination Method.

True: Plurality with Elimination eliminates the candidate with the least number of first place votes as many times as is necessary for a candidate to have a majority of the first-place votes. If a candidate already has the majority, that candidate wins and no elimination is necessary.

4. True or false: If B is a Majority Candidate then B will *always* win using the Pairwise Comparison Method. If true, explain why. If false, create an example of a preference schedule in which B is a Majority Candidate but B loses using the Pairwise Comparison Method.

True: If a candidate has a majority of first-place votes, then they will always have more voters than the candidate they are up against. Because they will win every match, that candidate will be a Condorcet candidate.