

DISCRETE MATH

▷ Test 1 // Review A

N:

D:

P: 1 2 3 4 5 6

Questions 1 –13 refer to an election with 4 candidates (A, B, C, and D), 71 voters and preference schedule given by the following table.

# of	27	19	8	15	2
1	B	A	D	C	A
2	D	D	C	A	C
3	A	C	A	D	D
4	C	B	B	B	B

1. Use the *Plurality Method*, to find the winner of the election.

2. Use the *Plurality w/ Elimination*, to find the winner of the election.

3. Use the *Borda Count Method*, to find the winner of the election.

4. Use the *Pairwise Comparisons Method*, to find the winner of the election.

5. In this election, which of the above were a “Condorcet candidate”? [hint: one of the above will give you an easy answer]

For the following *Extended Ranking* problems, recall from p. 22-23 and from lecture, that *Extended Ranking* is simply looking at your work above and placing a 1st, 2nd, 3rd, ..etc on the math already done. This should be quick.

6. Using the *extended Plurality ranking method*, which candidate comes in last?

7. Using the *extended Borda Count ranking method*, which candidate comes in last?

8. Using the *extended Plurality w/ Elimination ranking method*, which candidate comes in last?

9. Using the *extended Pairwise Comparisons ranking method*, which candidate comes in last?

For the following *Recursive Ranking* problems, recall from p. 24-26 and from lecture, that *Recursive Ranking* is NOT simply looking at your work above. You will need to find the first place person using the given method, then start the math over without that person to find 2nd place. Then start the math over without that person to find 3rd place. And so on. This will take a while.

10. Using the *recursive* Plurality ranking method, which candidate comes in 3rd?

#	27	19	8	15	2
1	B	A	D	C	A
2	D	D	C	A	C
3	A	C	A	D	D
4	C	B	B	B	B

11. Using the *recursive* Borda Count ranking method, which candidate comes in 2nd?

#	27	19	8	15	2
1	B	A	D	C	A
2	D	D	C	A	C
3	A	C	A	D	D
4	C	B	B	B	B

12. Using the *recursive* Plurality w/ Elimination ranking method, which candidate comes in 3rd?

#	27	19	8	15	2
1	B	A	D	C	A
2	D	D	C	A	C
3	A	C	A	D	D
4	C	B	B	B	B

13. Using the *recursive* Pairwise Comparisons ranking method, which candidate comes in 2nd?

#	27	19	8	15	2
1	B	A	D	C	A
2	D	D	C	A	C
3	A	C	A	D	D
4	C	B	B	B	B