Name: _____

MA111-009
Ch. 1 Practice Exam
2011-01-24

Part I: Matching

Match the name of the method to the description:

Plurality	The least number of last place votes wins.
Plurality w/ elimination	The most number of last place votes is eliminated. Repeat until only one is left.
Rachel's Survivor style	The most number of first place votes wins.
Least Harm	The least number of first place votes is eliminated. Repeat until only one is left.
Michael's (Borda) Count	Every pair of candidates goes head to head. Most victories wins.
Head-to-head	Each first place vote gets the most points, one less point for second place votes, etc. Most total points wins.

Match the name of the fair candidate to the description:

Majority winner	A candidate with more than 50% of the last place votes
Majority loser	A candidate with more than 50% of the first place votes
Condorcet winner	A candidate who loses every head-to-head matchup
Condorcet loser	A candidate who wins every head-to-head matchup

Part II: Elimination

Compress each set of preferences after a candidate is eliminated.

49	48	3
A	B	C
B	D	B
C	C	A
D	A	D

eliminate D → _____

20	17	10	10	5	1
A	B	A	C	C	B
B	C	C	A	B	A
C	A	B	B	A	C

eliminate C → _____

Part III: Counting

Use each method to determine the winner.

20	17	10	10	5	1
A	B	A	C	C	B
B	C	C	A	B	A
C	A	B	B	A	C

- Plurality:
- P. with e.:
- Rachel's:
- Least harm:

5	3	1
A	B	C
B	A	B
C	C	A

- Michael's:
- Head-2-head:

Part IV: Fairness:

Describe how each method fails to handle a fair candidate:

5	4
A	B
B	C
C	A

Under Michael's method,
A gets $(5)(3) + (4)(1) = 15 + \ 4 = 19$ points,
B gets $(5)(2) + (4)(3) = 10 + 12 = 22$ points, and
C gets $(5)(1) + (4)(2) = \ 5 + \ 8 = 13$ points, so B wins.
Which type of fair candidate is mistreated?

6	4	3	1	1
A	C	B	B	C
B	B	C	A	A
C	A	A	C	B

Under Plurality, A wins. Why is A treated unfairly?

Under Plurality with Elimination, C wins. Why is B treated unfairly?