

Math 181, Fall 2008, Review sheet for Hour Exam 2

This review sheet does not cover all possible questions and topics. There is a list of topics covered by this exam on the webpage.

Use this table of ballot preference lists to answer the following questions.

7	6	5	4	4
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A	B	C	D	E
B	C	D	C	B
C	A	E	B	C
D	D	A	A	A
E	E	B	E	D

1. Who wins using the Hare system?
2. Who wins using plurality runoff?
3. Who wins using the Borda count?
4. Who do you think should win? Does any of these voting systems seem fairer or better than the others? Give a reason for your preference.
5. Use the ballots above to demonstrate that plurality voting is vulnerable to group manipulation.
6. Is the Borda count monotone? Explain your answer.

1	1	1
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A	D	B
C	A	C
B	C	A
D	B	D

7. Is there a Condorcet winner in this election? Who?
8. Use this election to show that the Borda count can be manipulated.
9. What does independence of irrelevant alternatives (IIA) mean?

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

10. Use these ballots as a starting point to show that the plurality method does not satisfy IIA.
11. Imposed rule is used to decide a two-candidate election. Is imposed rule anonymous/neutral/monotone?
12. Explain why the Hare system satisfies the Pareto condition.