Math 110: Assignment 13. Name _____

Due Friday, April 23 at 3:00 pm. Neatness counts. Attach additional pages if needed.

1. Consider the results in the election below.

	7 Voters	5 Voters	4 Voters	3 Voters	Plurality	P w/IRV
A	2	3	3	1		
B	1	4	4	4		
C	4	2	1	2		
D	3	1	2	3		

a) Find the winner using the plurality method.

b) Find the winner using the plurality with IRV.

c) Find the Hare winner. (Make additional columns in the table.)

d) Find the Condorcet winner.

e) Do any of the voting methods used above violate the Condorcet Criterion? Explain.

f) Find the Borda count winner.

	7 Voters	5 Voters	4 Voters	3 Voters	Borda
A	2	3	3	1	
B	1	4	4	4	
C	4	2	1	2	
D	3	1	2	3	

g) Suppose that candidate C drops out of the election at the last minute. Again find the Borda count winner.

	7 Voters	5 Voters	4 Voters	3 Voters	Borda
A	2	3	3	1	
B	1	4	4	4	
C	4	2	1	2	
D	3	1	2	3	

h) Do the answers to the last two questions show that the Borda count violates Criterion IIA? Explain.

i) Do any of the voting methods used above violate the Majority Criterion? Explain.