Problem 1. Consider the following profile for a two-candidate election with fifteen total voters:

A	B	B
A	A	A
B	A	B
A	B	A
B	A	B

(a) Give a tabulated profile corresponding to this profile.

(b) What is the result under the simple majority method (and why)?

(c) Suppose we use a weighted voting method where each voter in the first column gets weight 2, each voter in the second column gets weight 1, and each voter in the third column gets weight 3. What is the result (and why)?

(d) Suppose we use a bloc voting method where each row is a bloc that gets one vote. What is the result (and why)?

Solution:

(a)

8	7
A	B

(b) A wins under the simple majority method.

(c) A gets $2+2+2+1+1+1+3+3=15$ votes, and B gets $2+2+1+1+3+3+3=15$ votes. It's a tie.

(d) A wins blocs 2 and 4, while B wins blocs 1, 3, and 5. So B wins.

Problem 2. Consider the following tabulated profile for a three-candidate election:

3	5	4	3
A	B	C	A
B	C	B	C
C	A	A	B

(a) What is the result under the plurality method (and why)?

(b) What is the result under Coombs's method (and why)?

(c) What is the result under the Borda count method (and why)?

Solution:

(a) A gets 6 votes, B gets 5, and C gets 4, so A wins.

(b) A has the most last-place votes with nine, and so loses. In the second round, C has 8 last-place votes and B has 7, so C is eliminated and B wins.

(c) A gets $6 + 0 + 0 + 6 = 12$ points. B gets $3 + 10 + 4 + 0 = 17$ points. C gets $0 + 5 + 8 + 3 = 16$ votes. So B wins.