Math 1015: Homework #3

Question 1. Explain why the Borda count satisfies the Unanimity criterion.

Question 2. Explain why the Condorcet method satisfies the Unanimity criterion.

Question 3. Explain why the Condorcet method satisfies the Monotonicity criterion.

Question 4. Explain why Ranked Choice Voting satisfies the Majority criterion.

Question 5. Does dictatorship satisfy the Condorcet Winner Criterion? Explain why or why not.

Question 6. Give an example demonstrating how the plurality system satisfies the monotonicity criterion. (Make up an example with As, Bs, Cs, etc, and show how boosting the winner makes the outcome stay the same.)

Question 7. Here is another made-up criterion, which I'll temporarily call Criterion Z: "If all voters rank X above Y, then X wins the election."

a) Explain how Criterion Z is not exactly the same as the Unanimity criterion.

b) Give an example showing that plurality does not satisfy Criterion Z. (You need to invent an example having some candidate X who is always ranked above some other candidate Y, but X does not win using plurality.)