

Math 1015: Homework #2

Question 1. I'm voting with my friends about the best local dog salon. Our choices are "Snip Doggy Dog" (SDD), "Waggies" (Wa), "Woof" (Wo), and "Ruff Cut" (RC). (These are all real names of dog salons in Fairfield county. Unfortunately Snip Doggy Dog has closed.) People's votes are like this:

Me	Friend 1	Friend 2	Friend 3	Friend 4	Friend 5	Friend 6	Friend 7
SDD	RC	Wa	RC	Wo	Wa	Wo	RC
Wo	Wo	SDD	SDD	SDD	SDD	Wa	Wo
Wa	Wa	Wo	Wa	RC	Wo	SDD	Wa
RC	SDD	RC	Wo	Wa	RC	RC	SDD

Please determine the results if we are using:

- a) Condorcet's method
- b) Borda Count

Question 2. In the 1980 US senate race in New York, the candidates were D'Amato (D), Holtzman (H), and Javits (J). Based on polling people's opinions between the three, the population's preferences were something like this:

22%	23%	15%	29%	7%	4%
D	D	H	H	J	J
H	J	D	J	H	D
J	H	J	D	D	H

Please determine the results if we are using:

- a) Condorcet's method
- b) Borda Count

Question 3. Here are the votes for the 2022 special election in Alaska between Mary Peltola, Sarah Palin, and Nick Begich (rounded, in thousands):

48	34	27	24	21	16	11	5	4
M	S	N	M	S	N	N	M	S
N	N	S			M		S	M
S	M	M			S		N	N

Please show that Begich was the Condorcet winner of this election.

Question 4. In real life, the winner of the Peltola-Palin-Begich election was Peltola, even though Begich was the Condorcet winner. (Peltola is a democrat, Palin & Begich are republicans.)

- a) Pretend you are a Republican who is about to appear on a news talk show, and write a brief statement explaining why you believe this outcome was unfair to Begich. Since you're appearing on the news, you shouldn't use words like "Condorcet winner" or any jargon like that. Explain it so that anybody could understand, even somebody who doesn't know anything about the mathematics of voting. Be specific! Don't just say that lots of people liked Begich.

(You can probably explain this in just a couple of sentences. You can write more than that if you want, but you don't need to.)

- b) Was this outcome similarly unfair to Palin? Or does the basic argument fall apart in her case? Again, explain in a few sentences.