Math 1007 Fall 2026
Mathematics and Politics
Homework 4 Due on Blackboard
Tuesday, September 22

Name:

Make sure to explain why all your answers are correct! Remember that you should be making short persuasive arguments. (This explanation can take the form of showing calculations, or of a couple sentences of writing, depending on the question.)

(1) Show that Coombs's method is not monotone or independent. (Hint: look at our proofs for Hare's method.)

(2) Do *The Mathematics of Politics* problem 4.2

(3) Do *The Mathematics of Politics* problem 4.6

(4) In a *sequential agenda* method, head-to-head contests are conducted between the candidates following a fixed order. In each round, the candidate who wins advances to the next round and faces the next candidate on the agenda.

Consider the tabulated profile

7	5	6
A	B	C
B	C	A
C	A	B

(a) What happens if the agenda starts with A facing B, and then the winner faces C?

(b) What happens if the agenda starts with A facing C, and then the winner faces B?

(c) What happens if the agenda starts with B facing C, and then the winner faces A?

(d) Is this method (in general) neutral? Why or why not?

(e) Is this method (in general) Condorcet? Why or why not?