

Voting Problem 4

At camp, seven seven-year olds are polled regarding what dessert they should have that night. Each one comes up with a preference list, ranking these 5 choices:

- Apple pie (A)
- Banana split (B)
- Coconut cream pie (C)
- Double chocolate cake (D)
- Extra-large oatmeal raisin cookies (E)

Here are the lists and the number of children voting for each:

Rank	Number of voters				
	2	2	1	1	1
<i>1st choice</i>	C	E	C	D	A
<i>2nd choice</i>	E	B	A	E	E
<i>3rd choice</i>	D	D	D	A	C
<i>4th choice</i>	A	C	E	C	D
<i>5th choice</i>	B	A	B	B	B

- Determine who wins the election by each of the following voting methods: (show your work on extra paper; show how many votes each candidate receives in each method)
 - a) plurality rule
 - b) majority rule
 - c) Borda count
 - d) instant runoff voting (show the new preference table at each stage)
- Who wins each head-to head matchup? The matchups are listed below.

A vs B A vs D B vs C B vs E C vs E

A vs C A vs E B vs D C vs D D vs E

Can you rank the candidates by their records? Who has the best record (and thus wins by this voting system, known as *pairwise comparison voting*)?