Please form groups of 2 to 4 people. Turn in one page per group.

Names:

A class must choose a new pet. Their choices are an Aardvark, a Bear, a Camel, a Donkey, or an Elephant. They are asked to rank their choices, and the ballots are found as shown:

	8	6	5	5	2
1st	C	A	E	D	D
2nd	B	E	C	C	A
3rd	A	D	D	A	E
4th	D	B	B	E	B
5th	E	C	A	B	C

1. We decide to use the Borda Count method. Show work to find the Borda points for each pet. Which pet will we choose?

2. Does our election using Borda points violate the Majority Criterion? Why or why not?

3. After the election, someone discovers that the store is all out of pet Aardvarks. Write the new preference schedule without the aardvarks, and find the Borda points. Which pet wins now?

4. Explain why this election shows that the Borda Count method can violate the Independence of Irrelevant Alternatives Criterion (IIA).

5. Now suppose they decided, instead, to use the Method of Pairwise Comparisons. Perform the comparisons and list the pairwise points for the original election. (You have a group: divide the work on this!)

   Hint: exactly three of the matchups are ties.

	8	6	5	5	2
1st	C	A	E	D	D
2nd	B	E	C	C	A
3rd	A	D	D	A	E
4th	D	B	B	E	B
5th	E	C	A	B	C

A vs B: B vs. D:

A vs. C: B vs. E:

A vs. D: C vs. D:

A vs. E: C vs. E:

B vs. C: D vs. E:

Pairwise Points (make sure they add to 10):
A: B: C: D: E: Winner?

6. Now someone finds out it's actually illegal to own a pet Aardvark (the others, of course, are all perfectly fine). Use the method of pairwise comparisons without the aardvarks. (*Hint:* notice that you don't need to redo the individual comparisons; you just need to recount the pairwise points.)

   Pairwise Points (make sure they add to 6):
   B: C: D: E: Winner?

7. For the original election, C wins using plurality with eight 1st place votes. If we eliminate D, C will still win with 13 first place votes. Does this show that the plurality method satisfies IIA? Explain why or why not.