Math 111 – Third Voting Worksheet

Print **all** group member's names here. Circle the name of the group member who will turn this in.

SOLUTIONS

1. An election is held with the results shown:

	12	2	7	6	9
1st	A	C	D	B	C
2nd	B	D	C	D	B
3rd	C	B	B	C	D
4th	D	A	A	A	A

(a) Is there a Majority Candidate? If so, who? If not, why not?

Total # voters: $12+2+7+6+9 = 36$

required for majority: $\frac{36}{2}+1 = 19$

actual first-place votes: A 12, B 6, C 11, D 7.

No one got 19 or more 1st place votes, so NO majority candidate.

(b) Which Candidate wins if the Pairwise Comparison Method is used? Show all the pairs, and give the pairwise points.

(A) 12 < (B) $2+7+6+9 = 24$

(C) $12+2+9 = 23$ > D $7+6 = 13$

(A) 12 < (C) $2+7+6+9 = 24$

(A) 12 < (D) $2+7+6+9 = 24$

TIE (B) $12+6 = 18$ < (C) $2+7+9 = 19$

(B) $12+6+9 = 27$ > D $2+7 = 9$

Pairwise Points

A 0

B $2\frac{1}{2}$

C $2\frac{1}{2}$

D 1

We have a tie between candidates B and C

(c) Is there a Condorcet candidate? If so, who? If not, why not? (How many pairwise points are required to be a Condorcet candidate in this election?)

NO. No candidate won every head-to-head matchup they were in. i.e., No candidate had exactly 3 pairwise points.