

12A,B: Voting Methods and Voting Power - SOLUTIONS

Group Activity

1. Ranked Choice Voting Election. Our class will elect the best candy out of the three that are running for office: **R=Reese's Peanut Butter Cups**, **S=Starburst**, **K=KitKat**

Please get ballot forms for your group and fill them out anonymously and turn them in. When all the results are tabulated, make a preference schedule.

Preference Schedule

	Number of Voters	2	6	3	3	2	
3	1 st choice	S	R	R	K	K	
2	2 nd choice	R	K	S	R	S	
1	3 rd choice	K	S	K	S	R	

- a. How many voters voted in this election? 16
- b. How many votes are needed for a majority? $16 \div 2 = 8, 8 + 1 = 9$ votes
- c. How many votes are needed for a plurality win? $16 \div 3 = 5.3, 6$ votes

d. Find the winner under the plurality method.

$S = 2, R = 9, K = 5$

R wins

e. Find the winner under the Instant Runoff Voting method.

$S = 2, R = 9, K = 5$

$R = 11$

R wins

f. Find the winner under the Borda Count method.

$S = 1 \cdot 9 + 2 \cdot 5 + 3 \cdot 2 = 25$

$R = 1 \cdot 2 + 2 \cdot 5 + 3 \cdot 9 = 39$

$K = 1 \cdot 5 + 2 \cdot 6 + 3 \cdot 5 = 32$

R wins

g. Find the winner under the Pairwise Comparisons method.

$S^4 R^{12}$
 $S^5 K^{11}$
 $R^{11} K^5$

R wins with 2 pairwise comparisons

h. Which method do you think is the most fair in this situation and why?

In this situation R had the majority of 1st place votes and they all came out the same.