

Math 107: Homework 7

Due Thursday, 4/7 start of class.

1. Voting: Suppose this preference schedule gives the results of an election among 3 candidates, A, B, and C.

27	24	2
A	B	C
C	C	B
B	A	A

You can find the definitions of the 4 voting methods [here](#). Answer these questions:

- (a) Who wins using the Plurality method?
 - (b) Does any candidate get a majority of the first place votes? If so, which one?
 - (c) Who wins using Pairwise Comparisons?
 - (d) Does any candidate beat every other candidate one-on-one? If so, which one?
 - (e) Who wins using the Borda Count method?
 - (f) Suppose candidate B drops out but the winner is still chosen using the Borda Count method. Is the winner the same as in (e) above? If not, which candidate does win?
2. [Here](#) is a map of the London subway system. Pick a station in district 1. How many stations is it connected to one stop away? How many stations are connected to the stations that the station was connected to? What is the relation between this map and the Friendship paradox?
 3. Find a graph on [Spurious correlations](#) and write a news article to justify it. Make it sound as real as possible. Please indicate which graph you used.
 4. [Here](#) you can find the meaning of positive or negative correlations. Give possible reasons for the following facts:

- (a) There is a positive correlation of headache and Tylenol consumption.
- (b) There is a negative correlation of Calculus score and study time.
- (c) There is a positive correlation between hand size and spelling ability.
- (d) There is a positive correlation of ice cream sales and number of kids drowning.