

**Part II: Free Response. Only one part at a time.**

Please remember to check conditions.

1. In a certain voting district, the proportions of voters who registered as members of specific parties are as follows:

Republican	0.48
Democrat	0.43
Green	0.04
Reform	0.03
Other	0.02

In the most recent presidential election, a random sample of 400 voters surveyed as they left the polling place said that they voted for the following presidential candidates:

Republican	197
Democrat	153
Green	32
Reform	12
Other	6

Do these data provide evidence that voters in this election did not vote according to their registered affiliation? Support your conclusion with the appropriate statistical test.

[12 pts]

2. A large company planning to install drink vending machines in its office building selects simple random samples of both the professional staff and the administrative support staff and asks people to choose between two brands of drink machines—Coca-Cola or Pepsi. Here are the results.

Drink Brand		Professional Staff	Support Staff	Total
		14	30	
	Coca-cola			44
	Pepsi	8	43	51
	Total	22	73	95

- (a) Do these data provide evidence that there is a difference in the brand preferences of the professional and administrative support staffs? Use a chi-square test to support your conclusion.

[12]

- (b) If the number of professional staff was changed to 50 for Coca-cola, describe how this would impact the test statistic in part (a) and what this change would suggest about the soda preferences of professional staff members.

[3]