Quiz 21

Assigned on Thur Mar 1, due on Mon Mar 5. You may work with a group of as many as 4 students, submitting one quiz with all names, provided that you all contribute to the work. You may use your notes. Also, please include your section number (8am: section 2, 9am: section 3) and “quiz 21” along with your name(s).

For questions #1-3, indicate whether the situation would call for a paired analysis or an independent-samples analysis.

1. To investigate the claim that first-year college students tend to gain weight during their first term, you take a random sample of 20 first-year students and weigh them at the beginning and end of their first term.

2. You wonder whether Cal Poly students tend to drive newer cars than Cal Poly faculty. You take a random sample of 20 students and a random sample of 10 faculty members, and ask each person how old their car is.

3. A school cafeteria offers a vegetarian and a non-vegetarian option for lunch every day. For a period of two weeks, you record how many calories are in the vegetarian option and how many calories are in the non-vegetarian option. Your goal is to see if vegetarian options tend to differ with regard to average number calories from non-vegetarian options.

For questions 4-5, indicate what is wrong with the null hypothesis (for a paired t-test) as written.

4. $H_0$: $\bar{x}_\text{diff} = 0$

5. $H_0$: $\pi_\text{diff} = 0$