STAT 312 – Quiz 20
Comparing Two Means

Taken on Tues Nov 17. You may work with a group of as many as 4 people, submitting one quiz with all names, provided that you all contribute to the work. You may use your notes.

We have studied four statistical inference situations so far:
A. One-sample $z$-procedures for a single proportion
B. One-sample $t$-procedures for a single mean
C. Two-sample $z$-procedures for comparing proportions
D. Two-sample $t$-procedures for comparing means

For each of the following questions, identify (by letter) the procedure that you would use to investigate that question.

1. Do cows tend to produce more milk if their handler speaks to them by name every day than if the handler does not speak to them by name? A farmer randomly assigned half of her cows to each group and then compared how much milk they produced after one month.

2. Are more than one-fourth of Cal Poly students are wearing clothing today that mentions Cal Poly in some manner?

3. Suppose that I take a random sample of 100 Cal Poly – San Luis Obispo students and record how many are wearing clothing today that mentions Cal Poly in some manner, and I ask a friend who teaches at Cal Poly – Pomona to do the same thing on his campus. We want to investigate whether the proportion of students who wear clothing that mentions Cal Poly differs between the two campuses.

4. Do sentences in John Grisham’s novels tend to be longer or shorter than sentences in Michael Crichton’s novels?

5. How many units, on average, is a full-time undergraduate student at Cal Poly taking this quarter?

6. Do I walk for more than 10,000 steps per day, on average?

7. Are people who identify themselves as politically conservative more likely to make a financial contribution to a charity than people who identify themselves as politically liberal?

8. Do Cal Poly faculty tend to drive cars that are older, on average, than Cal Poly students drive?

9. Student researchers investigated whether balsa wood is less elastic after it has been immersed in water. They took 44 pieces of balsa wood and randomly assigned half to be immersed in water and the other half not to be. They measured the elasticity by seeing how far (in inches) the piece of wood would project a dime into the air.
10. Are people more likely to fill in the missing letter in F A I ___ with an L if they are given a red pen rather than a blue pen?