

# Classroom Voting Questions: Elementary Statistics

## One Way ANOVA

1. One-Way ANOVA is a generalization of which test?
  - (a) pooled t-test
  - (b) nonpooled t-test
  - (c) paired t-test
  - (d) multiple comparisons
  
2. The test statistic in a One-Way ANOVA basically measures the ratio of
  - (a) the variance within the samples to the differences among the standard deviations of the samples
  - (b) the differences among the standard deviations of the samples to the variance within the samples
  - (c) the variance within the samples to the differences among the means of the samples
  - (d) the differences among the means of the samples to the variance within the samples
  
3. For college students consider the variable “classification” which takes on the values “freshman,” “sophomore,” “junior,” and “senior,” and the variable “frequency of binge drinking,” which takes on the values “never,” “less than once per month,” and “more than once per month.” If you suspect an association between “classification” and “frequency of binge drinking,” which statistical procedure should you perform? (Assume that all assumptions for the procedure are satisfied.)
  - (a) pooled t-test
  - (b) nonpooled t-test
  - (c) paired t-test
  - (d) confidence interval for two proportions
  - (e) hypothesis test for two proportions
  - (f) chi-square goodness-of-fit test
  - (g) chi-square independence test
  - (h) ANOVA

4. Your friend Myra is looking forward to seeing her two young cousins again this weekend. She says all they talk about is princesses. “They say the word ‘princess’ 10 times every five minutes,” Myra chuckles. You tell Myra you think that’s an exaggeration, and she agrees. Which statistical procedure could you both perform to see whether you are correct in your suspicion that Myra’s statement was an exaggeration? (Assume that all assumptions for the procedure are satisfied.)
- (a) hypothesis test for one mean
  - (b) pooled t-test
  - (c) nonpooled t-test
  - (d) hypothesis test for one proportion
  - (e) hypothesis test for two proportions
  - (f) chi-square goodness-of-fit test
  - (g) chi-square independence test
  - (h) ANOVA
5. You are in Washington D.C. working as an intern for a congresswoman. She asks you to get an estimate of the percentage of voters in her district who favor raising taxes on the rich. Which statistical procedure should you perform? (Assume that all assumptions for the procedure are satisfied.)
- (a) confidence interval for one mean
  - (b) hypothesis test for one mean
  - (c) confidence interval for one proportion
  - (d) hypothesis test for one proportion
  - (e) confidence interval for two proportions
  - (f) hypothesis test for two proportions
  - (g) chi-square goodness-of-fit test
  - (h) chi-square independence test
6. You are wondering whether there is a difference in the average heights of men in Canada, the United States, and Mexico. Which statistical procedure should you perform? (Assume that all assumptions for the procedure are satisfied.)
- (a) hypothesis test for one mean
  - (b) pooled t-test
  - (c) nonpooled t-test
  - (d) hypothesis test for one proportion

- (e) hypothesis test for two proportions
- (f) chi-square goodness-of-fit test
- (g) chi-square independence test
- (h) ANOVA

7. You just finished reading about the percentages of vehicles that got low gas mileage, medium gas mileage, and high gas mileage five years ago. You're wondering whether these percentages are different this year. Which statistical procedure should you use? (Assume that all assumptions for the procedure are satisfied.)

- (a) hypothesis test for one mean
- (b) pooled t-test
- (c) nonpooled t-test
- (d) hypothesis test for one proportion
- (e) hypothesis test for two proportions
- (f) chi-square goodness-of-fit test
- (g) chi-square independence test
- (h) ANOVA

8. Elliot is trying to determine whether there is a difference in the average number of hours of sleep between adults who live in farming communities and adults who live in cities. He has just created boxplots of his sample data and notices that the cities data is much more spread out than the farming communities data. Which statistical procedure should Elliot use? (Assume that all assumptions for the procedure are satisfied.)

- (a) hypothesis test for one mean
- (b) pooled t-test
- (c) nonpooled t-test
- (d) paired t-test
- (e) hypothesis test for two proportions
- (f) chi-square goodness-of-fit test
- (g) chi-square independence test
- (h) ANOVA