

ECON 3640 - Assignment 5

DEADLINE: 06.23.2021

Question 1- Get the dataset "ex06-128ODOR" into the Global Environment in R. Many food products contain small quantities of substances that would give an undesirable taste or smell if they were present in large amounts. Wine experts have determined the odor threshold, the lowest concentration of a compound that the human nose can detect. The odor threshold for dimethyl sulfide (DMS) is given as 25 micrograms per liter of wine ($\mu g/l$). Assume that the standard deviation of the odor threshold for untrained noses is known to be $\sigma = 7\mu g/l$. Obtain 95% confidence interval for the mean DMS
(Hint: R script "R_week5.1", question 6.16)

Question 2- Get the dataset "EX07-63EGO" into the Global Environment in R. Employers sometimes seem to prefer executives who appear physically fit, despite the legal troubles that may result. Employers may also favor certain personality characteristics. Fitness and personality are related. In one study, middle-aged college faculty who had volunteered for a fitness program were divided into low-fitness and high-fitness groups based on a physical examination. The subjects then took the Cattell Sixteen Personality Factor Questionnaire.

- a) Is the difference in mean ego strength significant at the 5% level? At the 1% level? Be sure to state H_0 and H_a .
- b) Can you generalize these results to the population of all middle-aged men? Give reasons for your answer
- c) Can you conclude that increasing fitness *causes* an increase in ego strength? Give reasons for your answer.

(Hint: R script "R_week6.1", question 7.52)