1. (a) The sizes of the rooms at this university are Roughly symmetric, bimodal



Center @ mean of 231.4 square feet

Spread of (100, 350) or (134, 315) square feet

(b) LF = 174 – (1.5\*118) = -3

UF = 292 + (1.5\*118) = 469



No outliers, all data falls between the lower and upper fences calculated.

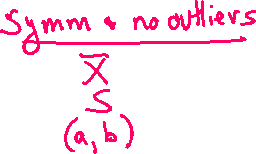
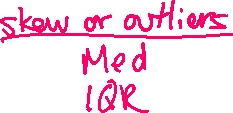


Chart

Description automatically generated



(c) The bimodal shape of the histogram is apparent in the first graph, however is unseen in the boxplot.



1. (a) Treatments: 4 levels of the fungus mixtures: 0, 1.25, 2.5, 3.75 ml/L

Experimental Units: 20 containers with equal amounts of insects in each

Response variable: number of insects alive in each container after one week.

(b) Yes, the 0 ml/L treatment would be the control group, because it contains no treatment (or contains none of the fungus mixture).

(c) Label each container with a number 01 – 20. Then use a random number generator (TRD, calculator, computer program, etc.) to randomly generate 5 numbers without repeats. These first 5 numbers would get the 0 ml/L treatment. Then randomly generate another 5 numbers (ignoring repeats), and those would get 1.25 ml/L, (etc. repeat)

1. (a) i) P(never and woman) = 0.0636

ii) P(never or woman) = 0.0564 + 0.0636 + 0.1384 + 0.3280 = 0.5864

= 0.53 + 0.12 – 0.0636

iii) P(never | woman) = 0.0636/0.53 = 0.12

(b) Independent = P(A|B) = P(A) OR P(A and B) = P(A) \* P(B)

P(never|woman) = P(never)

0.12 = 0.12

These two variables, gender and response, are independent, as evidenced in the work above. The probability of saying never given that someone is a woman is equal to the probability of saying never.

(c) p = 0.54 n = 5 B(5, 0.54)

P(X > 4) = 1- P(X < 3) = 1- binomcdf(5, 0.54, 3) = 0.2415

P(X < #) = Binomcdf(n, p, #)

P(X = #) = Binompdf(n, p, #)

1. 2 proportion Z test

