1

a)

b)

c)

2.

a)

, , ,

|  |  |  |  |
| --- | --- | --- | --- |
| Result | Drug | Placebo | Total |
| Nausea | 36 (25.15) | 13 (23.85) | 49 |
| No nausea | 254 (264.85) | 262 (251.15) | 516 |
| Total | 290 | 275 | 565 |

b)

c) Since , we can reject the null hypothesis. That is, the treatment and the side effect of nausea is not independent.

3.

a) ,

b)

c)

d)

Since , we can reject the null hypothesis. That is, the mean SAT Verbal score is larger 500.

4.

a)

i)

Since , we can’t reject the null hypothesis.

or ii)

Since , we can’t reject the null hypothesis.

b)

c)

Since , we can reject the null hypothesis. That is, the true average differs for the two locations

5.

a)

b)

Since , we can reject the null hypothesis. That is, the true mean life time is less than 750

c)

c-1) Rejection region :

Therefore,

c-2)

1pnorm(0.205)

6.

a) vs : at least two of the ’s are different

b)

86058.12

c) The values are in the following ANOVA table.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Source of Variation | df | Sum of Squares | Mean Squares | f |
| Treatments  Error  Toral | 2  6  8 | 86058.12  10245.88  96304 | 43029.06  1707.647 | 25.2 |

d) Since f=25.2 , we can reject the null hypothesis.

e) Construct the confidence interval of the difference between the mean pressure of compact cars and midsize cars.

7.

a)

b)

c) (1) lm (2) y (3) x (4) reg (5) 2.931 (6 0.7005

d) The equation of the estimated regression line is

e) y = 8.907+7.73 x 5=47.557

f) 8.907+7.73 x 5=1.443

g)

h) 51.427