Let  μ  be the true population average cost of a one-bedroom apartment ( in $).

Given that,

sample size, n=20

sample mean, x― =1009.2

sample standard deviation, s=234.7811

significance level, α =0.05 (i.e. 5%)

A)

sample size, n=20

B)

sample mean, x― =1009.2

C)

sample s,d ,s=234.7811

D)

Claim: Is to test that, the average cost of a one-bedroom apartment is less than $1216.

E)

The null and alternative hypotheses are ,

H0 : μ =1216 vs

Ha : μ <1216

F)

Test Statistic:

t=

(barx-muo)/(s/\sqrt{n}

(1009.2-1216)/(234.7811/\sqrt{20}

Explanaion:

Where, t follows t with n-1 degrees of freedom.

G) the degress of freedom is

d.f=n-1=20-1=19

Ans:19

H) Critical value=-t α,n−1

=-t0.05,19

=2.0930

 ∴  **critical value=-2.0930**

Explanaion:

By using t -critical value table

1. P-value

p(t<-3.9391)

p(t>3.9391)

J)

**Decision rule:**

We reject H0 at α% level of significance level if,

P-value<α

here , P-value < α i.e. 0.0004<0.05

Therefore, we reject H0 at 5% level of significance.

**Ans: Reject Ho**

k)

**There is sufficient evidence at 5% level of significance to support the claim that the average cost of a one-bedroom apartment is less than $1216.**