**ASSIGNMENT MAS291**

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**9-98**

Here, a sample of 484 is observed. If 117 engineering graduates were planning graduate study, then the proportion is

Since, it is claimed that nearly one half of engineering graduates continue the studies, then it is to be tested that

The test statistic is

The critical value at in two tails is 1.96. Since, , reject Ho

Therefore, the claim that nearly one half of engineering graduates continue the studies is not true.

**9-99**

Let p denotes the population proportion

Let denotes the sample proportion and n denotes the sample size,

The test statistic is

Decision Rule:

Reject at 0.01 level of significance if or if

Since and , we fail to reject at 0.01 level of significance. We conclude that the population proportion is not significanly less than 0.002

**8-22**

**Data provided:** 2.69, 5.76, 2.67, 1.62, and 4.12

We can calculate the sample mean with this formula:

 population mean (variable of interest)

 represent the population standard deviation

represent the sample size

**Confidence interval:**

Replacing into the formula for the interval we have this:

We are 95% confident that the true mean for the adhesion to solid surfaces in dyne-cm2 is between (2.793; 3.951)

**8-23**

a)

The 99% confidence interval for the true mean milk production is between 26.33kg/d and 29.67kg/d.

**Margin error**

The **lower end** of the interval is the sample mean substracted by M. So it 26.33kg/d.

The **higher end** of the interval is the sample mean substracted by M. So it 29.67kg/d

The 99% confidence interval for the true mean milk production is between 26.33kg/d and 29.67kg/d

b)

Margin error

Confidence level require is 91%

**10-38**

From the given data

X1 = 364.2 Si = 116.17

X2 = 325.7 S2 = 145.15

Sample size n1 = 10, and n2 = 10.

1. Null and alternative Hypotheses
2. Rejection Region

It is found that the critical value for this two-tailed test is , for and

The rejection region for this

1. Test statistic

Since it is assumed that the population variances are equal, the t-statistic is computed as follow:

1. Decision about the null hypothesis

Since it is observed that , it is then concluded that the null hypothesis is not rejected.

1. Conclusion

It is concluded that the null hypothesis is not rejected. Therefore, there is not enough evidence to claim that the population mean at 0.10 sinificance level

**11-16**

The report of study of the deflection (mm) of particleboard stress level of relate humility

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| x | 54 | 54 | 61 | 61 | 68 | 68 | 75 | 75 | 75 |
| y | 16.473 | 18.693 | 14.305 | 15.121 | 13.505 | 11.640 | 11.168 | 12.534 | 11.224 |

a)

Note that

Now find

Fiding the least squares estimate of the slope and intercept

Thus the filled simple linier regression model is

Fiding the total sum of squares and the regression sum of squaresand the error sum of square

The estimation of is

b) The estimate mean deflection when is

c) The estimated change in the mean deflection associated with a 5& increament in the stress level is

That is the mean deflection decreased by 1.3855mm

d)

The change in the mean deflection associated with the change of percentage in the stess level is