



Student Name.....ID:..... Group.: 30520 A

Quiz -1

Question: The following are the burning times of chemical flares of two different formulations. The design engineers are interested in both the means and variance of the burning times

Type 1		Type 2	
65	82	64	56
81	67	71	69
57	59	83	74
66	75	59	82
82	70	65	79

- (a) Test the hypotheses that the two variances are equal. Use $\alpha = 0.05$. What is the P-value for this test? (4)

$$H_0: \sigma^2_1 = \sigma^2_2 \quad H_1: \sigma^2_1 \neq \sigma^2_2$$

$$P\text{-value} = 0.974$$

Then accept the null hypothesis.

- (b) Conclusion: (2)

From test of the experiment we get that the two variances of the burning times of chemical flares are equal.

- (c) Using the results of (a), test the hypotheses that the mean burning times are equal. Use $\alpha = 0.05$. What is the P-value for this test? (4)

$$H_0: \mu_1 = \mu_2 \quad H_1: \mu_1 \neq \mu_2$$

$$P\text{-value} = 0.974$$

Then accept the null hypothesis and the two mean burning times of chemical flares are equal. P-value=0.962



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Quiz -1

Question: The following are the burning times of chemical flares formulations. The design engineers are interested in both the means and variance of the burning times

Burning times

65	82	64	56
81	67	71	69
57	59	83	74
66	75	59	82
82	70	65	79

- (a) Test the hypotheses that the variance is greater than 50. Use $\alpha = 0.05$. What is the P-value for this test? (4)

$$H_0: \sigma^2 = 50 \quad H_1: \sigma^2 > 50$$

$$P\text{-value (Chi-square)} = 0.038$$

Then reject the null hypothesis

- (b) Conclusion: (2)

From test of the experiment we get that the variance of the burning times of chemical flares aren't greater than 50.

- (c) Construct a 95 percent confidence interval estimate of variance. (4)

$$CI \text{ for variance (Chi-square)} = (47.6, 175.4)$$



Student Name.....ID:..... Group.: 30520 C

Quiz -1

Question: The following are the burning times of chemical flares formulations. The design engineers are interested in both the means and variance of the burning times

Burning times

65	82	64	56
81	67	71	69
57	59	83	74
66	75	59	82
82	70	65	79

- (a) Test the hypotheses that the variance is less than 120. Use $\alpha = 0.05$. What is the P-value for this test? (4)

$$H_0: \sigma^2 = 50 \quad H_1: \sigma^2 < 120$$

$$P\text{-value (Chi-square)} = 0.162$$

Then accept the null hypothesis

- (b) Conclusion: (2)

From test of the experiment we get that the variance of the burning times of chemical flares aren't less than 120

- (c) Construct a 99 percent upper bound estimate of variance. (4)

$$\text{The upper bound for variance (Chi-square)} = 204.7$$