Business statistics critical thinking examples

Business, Company

1.

Solution:

(a)

The 95% confidence interval is

We calculated it, it’s

So the 95% confidence interval for the average waiting time for the ride is

(53. 95, 70. 85)

(b)

The confidence interval means the probability that the average waiting time for the ride is between 53. 95 minutes and 70. 85 minutes is 0. 95.

(c)

Because 60 is within (53. 95, 70. 85), so the park need to employ more Staff.

2.

Solution:

(a) The distribution of o is Z distribution.

The 90% confidence interval for the portion is

We calculate it, it’s

So a 90% confidence interval for the portion of 18-22 year olds who drank

excessively before they were 18 is (0. 607, 0. 659).

(b)

The confidence interval means the portion of 18-22 year olds who drank excessively before they were 18 is between 0. 607 and 0. 659 is 0. 90.

3.

Solution:

(a)

The max error =

So ☾ ☾ ☾

So, the sample size needed is 86.

(b)

The max error of proportion is =

So

Because

So, so the sample size needed is 475.

4.

Solution:

(a)-(b)

The null hypothesis:

The alternative hypothesis:

The test statistic =

The p-value = P(Z <-1. 768)+P(Z> 1. 768) = 0. 077> 0. 05, so we can’t

reject the null hypothesis, so we think the mean amount of paint in the two-litre cans is no different from two litres.

5.

Solution:

(a)

The null hypothesis:

The alternative hypothesis: p> 0. 05

The test statistic =

The p-value = P(Z> 2. 294)= 0. 011 <0. 05, so we reject the null hypothesis, we think the defective rate is greater than 5%, the supplier didn’t meet the requirement.(b)

I’ll advise the company not to buy from this supplier.

6.

Solution:

The null hypothesis:

The alternative hypothesis:

The test statistic =

The p-value = P(Z <-1. 667) = 0. 048 <0. 10, so we reject the null hypothesis, so we conclude at the 10% level of significance that the company's mean hourly wage is less than that for the industry.