

# [Business statistics critical thinking examples](https://assignbuster.com/business-statistics-critical-thinking-examples/)

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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.