

Questions: Introduction to confidence intervals

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Summary

A selection of questions to test your understanding of confidence intervals, using the normal distribution.

Before attempting these questions it is highly recommended that you read [Guide: Introduction to confidence intervals](#).

Q1

Identify the confidence level from these alpha values.

- 1.1. $\alpha = 0.05$
- 1.2. $\alpha = 0.1$
- 1.3. $\alpha = 0.01$

Q2

Using the normal distribution, what are the Z Values for these alpha values? You may find [Calculator: Z-score](#) helpful.

- 2.1. $\alpha = 0.05$
- 2.2. $\alpha = 0.1$
- 2.3. $\alpha = 0.01$

Q3

Cantor's Confectionery want to calculate a 90% confidence interval for the weight of 178 chocolate swirls. The average weight of this sample is 14g and the standard deviation is 0.75g.

identify the following:

- 3.1. n = sample size
- 3.2. \bar{x} = sample mean
- 3.3. σ = sample standard deviation
- 3.4. α = alpha value
- 3.5. $Z_{\frac{\alpha}{2}}$ = Z value using the normal distribution

Q4

- 4.1. Use the information in **Q3** to construct a 90% confidence interval for the weight of Cantor's Confectionery's chocolate swirls.
- 4.2 Explain what the confidence interval tells you in context of Cantor's Confectionery.

Q5

Use the summary table to construct the following:

- 5.1 a 90% CI
- 5.2 a 95% CI
- 5.3 a 99% CI

| | |
|------------|----|
| σ | 4 |
| \bar{x} | 31 |
| σ^2 | 16 |
| n | 59 |

[After attempting the questions above, please click this link to find the answers.](#)

Version history and licensing

v1.0: initial version created 12/04 by mh392 (as part of a University of St Andrews VIP project)

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