

Assessment Report

New Zealand Scholarship Statistics 2025

Performance standard 93201

General commentary

Candidates are expected to demonstrate a comprehensive understanding of the achievement objectives from the statistics strand of the curriculum up to and including Level 8. This includes statistical concepts and skills assessed by the NCEA Level 3 Statistics Achievement standards. Candidates who were successful demonstrated well-developed knowledge of statistical ideas and demonstrated evidence of their participation in various learning experiences across a broad range of statistical topics, as opposed to relying on rote memorisation or rehearsed answers from previous examination questions or other learning materials.

The examination comprised of four questions aligned with the 2025 assessment specifications. All questions were set within real-world contexts, and encompassed areas such as statistical investigations, statistical literacy, and probability. The questions required candidates to integrate skills and knowledge from multiple areas of the statistics curriculum, with an emphasis on data analysis and interpretation. Candidates were presented with data in a variety of familiar and unfamiliar formats and were required to identify and interpret relevant features of the data within the given context.

Successful candidates demonstrated proficiency across a range of statistical contexts, interpreting data displays and statistical outputs appropriately while integrating contextual knowledge into their responses. They displayed strong competencies in their selection and application of appropriate statistical models, and in calculations related to probability concepts, all of which were informed by contextual considerations. Responses to Question Two (c)(ii) indicated difficulty in drawing connections from across different areas of statistics, with candidates readily identifying the purpose of an experimental study design, but struggling to identify the purpose of a sample-to-population inference study design. Question Three (c) also revealed weaknesses in the use of appropriate statistical language, with candidates often failing to reference the correct population in their discussion.

Candidates who demonstrated strong performance typically displayed advanced reasoning skills and an ability to synthesise ideas across different areas of statistics. These candidates applied statistical models accurately, used statistical language precisely, and interpreted statistical output fully, consistently linking results back to context and reasoning beyond procedural level. Outstanding-level responses often provided insightful commentary on the implications of statistical findings. This was particularly evident in Question Two (b) where candidates were required to interpret statistical outputs and to evaluate the effects of study design on the extension of results. While scholarship-level candidates were generally able to compare relevant features and interpret a tail proportion in context, higher performing candidates also identified the limitations of the study design. Similarly, in Question Four (c)(i) and (ii), scholarship-level candidates were typically able to calculate an appropriate probability, whereas higher-performing candidates also identified the relevant assumptions in context.

Report on performance standard

Candidates who were awarded Scholarship with **Outstanding Performance** commonly:

- consistently made insightful connections to context
- applied statistical models in context with a high degree of accuracy
- discussed assumptions, sampling strategies, and issues with study design in relation to validity and inference
- were familiar with the key aspects of experimental design and sample-to-population inference
- interpreted outputs from re-randomisation distributions, bootstrap distributions, and confidence interval calculations fully including discussion of reservations
- used appropriate statistical language and terminology that enhanced their interpretation of evidence.

Candidates who were awarded **Scholarship** commonly:

- interpreted information from various data displays and test outputs
- evidenced comments and comparisons numerically
- created and interpreted appropriate confidence intervals from correct margin of error calculations
- showed an understanding of experimental design and sample-to-population inference
- demonstrated the ability to identify appropriate parameters for statistical models
- selected and evidenced appropriate statistical models for given situations
- identified concerns with models, claims or results
- understood the purpose of different analysis methods.

Candidates who were **not awarded Scholarship** commonly:

- did not read graphs or questions carefully
- did not provide responses in context
- did not provide numeric evidence when making comments and comparisons about data
- demonstrated a lack of understanding of key experimental design principles
- demonstrated a lack of understanding of key sample-to-population inference principles
- were unable to identify appropriate statistical models or parameters for a specific context
- confused measures of centrality or neglected to specify the relevant statistic
- could not identify key features or trends from figures and often wrote lengthy descriptions of insignificant features or trends
- confused randomisation displays (i.e., bootstrapping and re-randomisation).