

Achievement Standard

Subject Reference	Mathematics and Statistics 1.4		
Title	Demonstrate mathematical reasoning		
Level	1	Credits	5
		Assessment	External
Subfield	Mathematics		
Domain	Mathematical Studies		
Status	Approved	Status date	March 2023
Planned review date	December 2028	Date version published	March 2023

Purpose Statement

Students are able to demonstrate mathematical reasoning.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> Demonstrate mathematical reasoning 	<ul style="list-style-type: none"> Demonstrate mathematical reasoning with relational thinking 	<ul style="list-style-type: none"> Demonstrate mathematical reasoning with extended abstract thinking

Explanatory Notes

- 1 *Demonstrate mathematical reasoning* involves:
- using mathematical methods
 - using mathematical concepts and terms
 - communicating using appropriate representations.

Demonstrate mathematical reasoning with relational thinking involves:

- carrying out an appropriate sequence of steps
- using appropriate mathematical statements.

Demonstrate mathematical reasoning with extended abstract thinking involves at least one of:

- developing a clear chain of logical reasoning
- forming a generalisation or providing a proof
- extending mathematical methods to investigate or solve a problem.

- 2 *Mathematical methods* mean methods from number, algebra, measurement, or geometry and space.
 - 3 A *sequence* consists of two or more mathematical methods within a single problem.
 - 4 Refer to the NCEA [glossary](#) for Māori, Pacific, and further subject-specific terms and concepts.
 - 5 This achievement standard is derived from the Mathematics and Statistics Learning Area at Level 6 of *The New Zealand Curriculum: Learning Media*, Ministry of Education, 2007.
-

Replacement Information

This achievement standard and AS91944-AS91946 replaced AS91026-AS91038.

Quality Assurance

- 1 Schools and institutions must have been granted consent to assess by NZQA before they can register credits from assessment against achievement standards.
- 2 Schools and institutions with consent to assess must engage with the moderation system that applies to those achievement standards.

Consent and Moderation Requirements (CMR) reference 0233
