

Achievement Standard

Subject Reference Mathematics and Statistics 2.3

Title Apply sequences and series in solving problems

Level 2 **Credits** 2 **Assessment** Internal

Subfield Mathematics

Domain Algebra

Status Registered **Status date** 17 November 2011

Planned review date 31 December 2019 **Date version published** 5 February 2015

This achievement standard involves applying sequences and series in solving problems.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> Apply sequences and series in solving problems. 	<ul style="list-style-type: none"> Apply sequences and series, using relational thinking, in solving problems. 	<ul style="list-style-type: none"> Apply sequences and series, using extended abstract thinking, in solving problems.

Explanatory Notes

- 1 This achievement standard is derived from Level 7 of *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007; and is related to the achievement objective
- use arithmetic and geometric sequences and series in the Mathematics strand of the Mathematics and Statistics Learning Area. It is also related to the material in the *Teaching and Learning Guide for Mathematics and Statistics*, Ministry of Education, at <http://seniorsecondary.tki.org.nz>.

This standard is also derived from *Te Marautanga o Aotearoa*. For details of Te Marautanga o Aotearoa achievement objectives to which this standard relates, see the [Papa Whakaako](#) for the relevant learning area.

- 2 *Apply sequences and series in solving problems* involves:
- selecting and using methods
 - demonstrating knowledge of concepts and terms
 - communicating using appropriate representations.

Relational thinking involves one or more of:

- selecting and carrying out a logical sequence of steps
- connecting different concepts or representations
- demonstrating understanding of concepts
- forming and using a model;

and also relating findings to a context or communicating thinking using appropriate mathematical statements.

Extended abstract thinking involves one or more of:

- devising a strategy to investigate a situation
- identifying relevant concepts in context
- developing a chain of logical reasoning, or proof
- forming a generalisation;

and also using correct mathematical statements, or communicating mathematical insight.

3 Problems are situations that provide opportunities to apply knowledge or understanding of mathematical concepts and methods. Situations will be set in real-life or mathematical contexts.

4 Methods include a selection from those related to:

- the general term of a sequence
- a partial sum of a sequence
- the sum to infinity of a geometric series
- finding the value of the first term, common difference or common ratio of a sequence
- finding the number of terms in a sequence.

5 Methods could require solving equations, which could involve using logarithms.

6 Conditions of Assessment related to this achievement standard can be found at <http://ncea.tki.org.nz/Resources-for-Internally-Assessed-Achievement-Standards>.

Replacement Information

This achievement standard replaced AS90290, AS90806, and unit standard 5248.

Quality Assurance

1 Providers and Industry Training Organisations must have been granted consent to assess by NZQA before they can register credits from assessment against achievement standards.

2 Organisations with consent to assess and Industry Training Organisations assessing against achievement standards must engage with the moderation system that applies to those achievement standards.

Consent and Moderation Requirements (CMR) reference

0233