

Achievement Standard

Subject Reference	Mathematics and Statistics 2.6		
Title	Apply algebraic methods in solving problems		
Level	2	Credits	4
		Assessment	External
Subfield	Mathematics		
Domain	Algebra		
Status	Registered	Status date	17 November 2011
Planned review date	31 December 2014	Date version published	17 November 2011

This achievement standard involves applying algebraic methods in solving problems.

Achievement Criteria

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

Explanatory Notes

- 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 objectives
 - manipulate rational, exponential, and logarithmic algebraic expressions
 - form and use linear and quadratic equations
 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, 2010 at <http://seniorsecondary.tki.org.nz>.
- Apply algebraic methods in solving problems* involves:
 - selecting and using methods
 - demonstrating knowledge of algebraic 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 or solve a problem
- 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:
 - manipulating algebraic expressions, including rational expressions
 - manipulating expressions with exponents, including fractional and negative exponents
 - determining the nature of the roots of a quadratic equation
 - solving exponential equations (which may include manipulating logarithms)
 - forming and solving linear and quadratic equations.
- 5 Assessment Specifications for this achievement standard can be accessed through the Mathematics and Statistics Resources page found at <http://www.nzqa.govt.nz/qualifications-standards/qualifications/ncea/ncea-subject-resources/>.

Replacement Information

This achievement standard and AS91269 replaced AS90284, AS90806, and AS90809, and unit standard 5246.

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