

Achievement Standard

Subject Reference Mathematics and Statistics 1.3

Title Investigate relationships between tables, equations and graphs

Level 1 **Credits** 4 **Assessment** External

Subfield Mathematics

Domain Algebra

Status Registered **Status date** 9 December 2010

Planned review date 31 December 2014 **Date version published** 9 December 2010

This achievement standard involves investigating relationships between tables, equations and graphs.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> Investigate relationships between tables, equations and graphs. 	<ul style="list-style-type: none"> Investigate relationships between tables, equations and graphs, using relational thinking. 	<ul style="list-style-type: none"> Investigate relationships between tables, equations and graphs, using extended abstract thinking.

Explanatory Notes

- This achievement standard is derived from Level 6 of *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007, and is related to the material in the *Teaching and Learning Guide for Mathematics and Statistics*, Ministry of Education, 2010 at <http://seniorsecondary.tki.org.nz>. The following achievement objectives taken from the Patterns and Relationships, Equations and Expressions, and Number Strategies and Knowledge threads of the Mathematics and Statistics learning area are related to this achievement standard:
 - find optimal solutions, using numerical approaches
 - solve linear equations and inequations, quadratic and simple exponential equations, and simultaneous equations with two unknowns
 - relate graphs, tables, and equations to linear, quadratic, and simple exponential relationships found in number and spatial patterns
 - relate rate of change to the gradient of a graph.

- 2 *Investigate relationships* involves:
- making links between tables, equations and graphs
 - demonstrating knowledge of concepts and terms
 - communicating using appropriate numeric, symbolic or graphical representations.

Relational thinking involves one or more of:

- selecting and carrying out a logical sequence of steps
- connecting different concepts and 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 *Relationships* include the connections between matching features of tables, equations and graphs, as well as mappings between variables in a set of ordered pairs (relations).

- 4 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 AS91029 replaced unit standard 5238.

Quality Assurance

- 1 Providers and Industry Training Organisations must be accredited by NZQA before they can register credits from assessment against achievement standards.
- 2 Accredited providers and Industry Training Organisations assessing against achievement standards must engage with the moderation system that applies to those achievement standards.

Accreditation and Moderation Action Plan (AMAP) reference

0233