Achievement Standard

Subject Reference	CAS Mathematics 1.2				
Title	Demonstrate an understanding of the features of graphs				
Level	1	**Credits**	3	**Assessment**	External
Subfield	Mathematics				
Domain	Algebra				
Status	Registered	**Status date**	10 November 2006		
Planned review date	28 February 2010	**Date version published**	10 November 2006		

This achievement standard involves demonstrating an understanding of the features of graphs.

Note: Students cannot use credit for both this achievement standard and AS90148, Mathematics 1.2, towards a national qualification including a National Certificate of Educational Achievement.

	Achievement Criteria	Explanatory Notes
Achievement	• Demonstrate an understanding of the features of graphs.	• Graphs involved will be based on a selection from: – linear relations of the form $y = mx + c$, $x = a$, $y = b$ – quadratic functions, written in factored form and with a coefficient of ± 1 for x^2, or in the form $y = \pm x^2 + c$.
Achievement with Merit	• Demonstrate an understanding of the relationship between functions and the features of their graphs.	• Assessment will be based on a selection from: – linear and quadratic functions written in any form – relationships between graphs, tables and equations – families of functions and may involve the solution of problems.
Achievement with Excellence	• Determine and apply appropriate model(s) to solve graphical problem(s).	• Assessment will be based on a selection from: – solution of problems by linking features – generalisations (this may involve families of functions).

General Explanatory Notes

1 This achievement standard is derived from *Mathematics in the New Zealand Curriculum*, Learning Media, Ministry of Education, 1992:
- achievement objectives, pp. 148, 154
- suggested learning experiences, pp. 149, 155
- sample assessment activities, pp. 150-152, 156-157
- mathematical processes, pp. 26, 28.

2 Features could include x and y intercepts, maxima and minima, axes of symmetry, domain and range, and gradients of straight lines (rates of change).

3 Graphs will involve only linear and quadratic functions.

4 An understanding of transformations of graphs is expected.

5 Computer Algebraic Systems (CAS) technology may be used.

Quality Assurance

1 Providers and Industry Training Organisations must be accredited by the Qualifications Authority 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 0226