

### Reviewed Achievement Standard

**Subject Reference**

Mathematics 1.2

**Title**

Sketch and interpret graphs

**Level**

1

**Credits**

3

**Assessment**

External

**Subfield**

Mathematics

**Domain**

Algebra

**Registration date**

21 October 2003

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This achievement standard involves sketching, and interpreting features of, linear or quadratic graphs.

	Achievement Criteria	Explanatory Notes
<b>Achievement</b>	<ul style="list-style-type: none"> <li>Sketch, and interpret features of, graphs.</li> </ul>	<ul style="list-style-type: none"> <li>Assessment will be based on a selection from:                             <ul style="list-style-type: none"> <li>linear equations of type <math>y = mx + c</math>, <math>x = a</math>, <math>y = b</math></li> <li>quadratics, which will be written in factored form and only have a coefficient of <math>\pm 1</math> for <math>x^2</math>, or in the form <math>y = \pm x^2 + c</math>.</li> </ul> </li> </ul>
<b>Achievement with Merit</b>	<ul style="list-style-type: none"> <li>Sketch, and interpret features of, graphs.</li> <li>Write equations for linear graphs.</li> </ul>	<ul style="list-style-type: none"> <li>Assessment will be based on:                             <ul style="list-style-type: none"> <li>Linear equations written in any form</li> <li>Quadratic equations, which may have coefficients of <math>x^2</math> other than <math>\pm 1</math>.</li> </ul> </li> </ul>

<b>Achievement with Excellence</b>	<ul style="list-style-type: none"> <li>Determine and apply an appropriate model for a situation involving graphs.</li> </ul>	<ul style="list-style-type: none"> <li>Assessment may involve:             <ul style="list-style-type: none"> <li>writing equation(s) from a graph to solve a problem (For writing quadratic equations, a combination of two different types of transformations only is expected, eg <math>y = 2x^2 + 3</math>, or <math>y = (x-2)^2 + 1</math>)</li> <li>drawing a graph to find the solution to a problem.</li> </ul> </li> </ul>
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### General Explanatory Notes

- 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, 156
  - mathematical processes, pp. 26, 28.
- Features could include  $x$  and  $y$  intercepts, maxima and minima, axes of symmetry, and gradients of straight lines (rates of change).
- Hyperbola, circle and exponential graphs are included in the Level 2 achievement standard where graphs can be used as models in practical situations.

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### Quality Assurance

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