

## Achievement Standard

**Subject Reference** Mathematics 1.1

**Title** Use straightforward algebraic methods and solve equations

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

**Subfield** Mathematics

**Domain** Algebra

**Status** Registered      **Status date** 21 October 2003

**Planned review date** 28 February 2007      **Date version published** 17 November 2006

This achievement standard involves using algebraic expressions and solving equations.

Note: Students cannot use credit for both this achievement standard and AS90799, CAS Mathematics 1.1, towards a national qualification including a National Certificate of Educational Achievement.

	Achievement Criteria	Explanatory Notes
<b>Achievement</b>	<ul style="list-style-type: none"> <li>• Use straightforward algebraic methods.</li>   <li>• Solve equations.</li> </ul>	<ul style="list-style-type: none"> <li>• Assessment will be based on a selection from:               <ul style="list-style-type: none"> <li>– factorising and expanding</li> <li>– simplifying algebraic expressions involving exponents, such as <math>(2x)^3</math> and <math>\frac{12a^5}{8a^2}</math></li> <li>– substituting values into formulae</li> <li>– describing linear patterns based on diagrams or tables.</li> </ul> </li>   <li>• Assessment will be based on a selection from:               <ul style="list-style-type: none"> <li>– solving linear equations such as <math>5x + 12 = 3 + 2x</math> or <math>3(x+2) = 7</math></li> <li>– solving factorised equations such as <math>(x-1)(2x+3) = 0</math>.</li> </ul> </li> </ul>

	Achievement Criteria	Explanatory Notes
Achievement with Merit	<ul style="list-style-type: none"> <li>Use algebraic methods and solve equations in context.</li> </ul>	<ul style="list-style-type: none"> <li>Assessment will be based on a selection from:               <ul style="list-style-type: none"> <li>manipulating and simplifying expressions in advance of Achievement level, such as <math>\frac{x}{4} + \frac{x}{3}</math> and <math>\frac{x^2 - 4}{x - 2}</math></li> <li>describing quadratic patterns</li> <li>rearranging formulae</li> <li>forming and solving linear equations or inequations</li> <li>solving simple quadratic equations such as <math>x^2 + 30x = 400</math> and interpreting the results (completing the square and the quadratic formula are not required)</li> <li>solving pairs of simultaneous linear equations.</li> </ul> </li> </ul>
Achievement with Excellence	<ul style="list-style-type: none"> <li>Use algebraic strategies to investigate and solve problems.</li> </ul>	<ul style="list-style-type: none"> <li>Problems will involve:               <ul style="list-style-type: none"> <li>modelling by forming and solving appropriate equations</li> <li>interpretation in context.</li> </ul> </li> </ul>

### 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.
- Equations may be solved by any appropriate method.

### 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.

Accreditation and Moderation Action Plan (AMAP) reference

0226