

## Achievement Standard

<b>Subject Reference</b>	Mathematics and Statistics 2.5		
<b>Title</b>	Apply network methods in solving problems		
<b>Level</b>	2	<b>Credits</b>	2
		<b>Assessment</b>	Internal
<b>Subfield</b>	Mathematics		
<b>Domain</b>	Geometry		
<b>Status</b>	Registered	<b>Status date</b>	17 November 2011
<b>Planned review date</b>	31 December 2014	<b>Date version published</b>	17 November 2011

This achievement standard involves applying network methods in solving problems.

### Achievement Criteria

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

### 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 objective
  - choose appropriate networks to find optimal solutions in the Mathematics strand of the Mathematics and Statistics Learning Area. It is also related to material in the *Teaching and Learning Guide for Mathematics and Statistics*, Ministry of Education, 2010 at <http://seniorsecondary.tki.org.nz>.
- Apply network methods in solving problems* involves:
  - selecting and using methods
  - demonstrating knowledge of 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 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 *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:
    - shortest path
    - traversability
    - minimum spanning tree.
  - 5 Conditions of Assessment related to this achievement standard can be found at [www.tki.org.nz/e/community/ncea/conditions-assessment.php](http://www.tki.org.nz/e/community/ncea/conditions-assessment.php).
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### Replacement Information

This achievement standard replaced unit standard 5249.

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### 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