Achievement Standard

Subject Reference	CAS Mathematics 2.3				
Title	Demonstrate an understanding of processes involving trigonometry and coordinates				
Level	2	**Credits**	4	**Assessment**	External
Subfield	Mathematics				
Domain	Trigonometry				
Status	Registered	**Status date**		16 November 2007	
Planned review date	28 February 2009	**Date version published**		16 November 2007	

This achievement standard involves demonstrating an understanding of processes involving measurements and coordinates.

Note: Candidates cannot use credit for both this achievement standard and either of AS90287 or AS90291 (Mathematics 2.4 and 2.8) towards a national qualification including a National Certificate of Educational Achievement.

Achievement Criteria

	Achievement Criteria	Explanatory Notes
Achievement	• Demonstrate an understanding of processes involving trigonometry and coordinates.	• Processes will be selected from: – finding the equation of parallel and perpendicular lines – the use of o area of triangle formulae o sine and/or cosine rules. • Understanding of processes may be assessed in a context involving 2-dimensional situations.

	Achievement Criteria	**Explanatory Notes**
Achievement with Merit	• Demonstrate an understanding of processes involving trigonometry and coordinate problems using a combination of techniques.	• Problems could include a combination of techniques involving: – finding equations of o medians o perpendicular bisectors o altitudes – finding o lengths o angles o areas of triangles o areas of sectors o arc length – proofs that o a triangle is isosceles or right angled isosceles o points are collinear and may involve the use of – bearings – relative velocity – radian measure.
Achievement with Excellence	• Demonstrate an understanding of processes involving trigonometry and coordinates using a combination of techniques, and using a chain of reasoning.	• The complexity of the problems will require a chain of reasoning. • Problems could involve: – 3-dimensional situations or 2-dimensional representation of 3-dimensional situations – a combination of techniques selected from sine and cosine rules, areas of triangles, sectors or segments. • A chain of reasoning implies multi-step problems or the development of a proof.

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. 82, 116, 120
- suggested learning experiences pp. 83, 117, 121
- sample assessment activities pp. 84-85, 118, 122-123
- mathematical processes pp. 24, 26.

2 *Demonstrating an understanding* involves more than the mere demonstration of a method such as writing the equation of a line. The method needs to be applied in a context (which could be mathematical).

3 Candidates may use any appropriate method to demonstrate understanding of processes.

4 Formulae for the sine and cosine rules; areas of triangles, sectors and segments; and arc length will be given in the formulae sheet.

5 It is expected that candidates will relate their solutions to the context. Evidence of appropriate rounding and units is required.

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 0226