2

90808

908080

NZQA

NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

For Supervisor's use only

Level 2 CAS Mathematics, 2009

90808 Demonstrate an understanding of processes involving trigonometry and coordinates

Credits: Four
9.30 am Monday 16 November 2009

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

Make sure you have the Formulae Sheet L2-MATHF.

Answer ALL the questions in this booklet.

The questions in this paper are NOT in order of difficulty. Attempt all questions or you may not provide enough evidence to achieve the required standard.

If you need more space for any answer, use the page(s) provided at the back of this booklet and clearly number the question.

Check that this booklet has pages 2–6 in the correct order and that none of these pages is blank.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

For Assessor's use only	**Achievement Criteria**	
Achievement	**Achievement with Merit**	**Achievement with Excellence**
Demonstrate an understanding of processes involving trigonometry and coordinates.	Demonstrate an understanding of processes involving trigonometry and coordinate problems using a combination of techniques.	Demonstrate an understanding of processes involving trigonometry and coordinates using a combination of techniques, and using a chain of reasoning.
Overall Level of Performance		

You are advised to spend 55 minutes answering the questions in this booklet.

Assessor's use only

QUESTION ONE

(a) The equation of the line AB is $5x + 4y = 8$.
The equation of the line CD is $kx + 7y = 16$.

AB is parallel to CD.

Find the value of k.

(b) The points P (0,2), Q (q,4) and R (7, r) form a right-angled triangle.
The right angle is at Q.

(i) Express r in terms of q.

Assessor's use only

(ii) S is the point (4,–1).

Find the equation of the line RS in terms of r.

(iii) P is the point (0,2) and S is the point (4,–1).
T is a variable point.
Triangle PST has area 20.

Find the equations that give all the possible positions of the point T.

QUESTION TWO

Assessor's use only

(a) O (0,0), B (0,5) and C (c,5) are three points.

(i) The area of the triangle OBC is 16.

Find the value of c.

(ii) Find the length of OC.

Assessor's use only

(b) Coastal Peak, Rugged Mountain and Mount Andies are three peaks in a mountain range. Records show that Coastal Peak is 11.7 km from Rugged Mountain on a bearing of 030, and that Mt Andies is 15.5 km from Coastal Peak on a bearing of 127.

Calculate the distance from Mount Andies to Rugged Mountain.

(c) O is the point (0,0), F is the point (a,2a) and G is the point (2a,3a).

Calculate the size of angle OFG.

Extra paper for continuation of answers if required.
Clearly number the question.

Assessor's use only

Question number