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NZQA

NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

For Supervisor's use only

Level 2 Mathematics CAS, 2008

90808 Demonstrate an understanding of processes involving trigonometry and coordinates

Credits: Four
2.00 pm Monday 24 November 2008

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.

You should answer ALL the questions in this booklet.

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 2–7 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

Three points A(1,3), B (b,5) and C (–7,c) are collinear.

Express b in terms of c.

QUESTION TWO

Assessor's use only

Points P (p,3) and Q (q,r) both lie on the line $2y = 5x - 4$.

(a) Find the value of p.

(b) Point S is 5 units from the line $2y = 5x - 4$.
The area of PQS is 30 square units.

Find the pairs of possible coordinates of point Q.

QUESTION THREE

Assessor's use only

The equation of the line AB is $5x + 2y = 4$.
The equation of the line CD is $kx + 4y = 2$.
CD is perpendicular to AB.

Find the value of k.

Assessor's use only

QUESTION FOUR

A is the point (3,2), B is (5,0) and C is (d,1).

Find any restrictions on the value of d if ABC is a triangle with the longest side being AC.

QUESTION FIVE

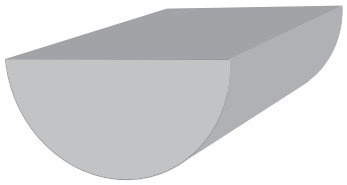
The distance of the point (k,2) from the line $y = x + 4$ is 4.

Find the values of k.

QUESTION SIX

Assessor's use only

Farmer Brown has a cow trough made out of half a drum, as shown in the diagram.
The diameter of the drum is 76 cm and its length is 112 cm.
The drum is lying on its side on level ground with the top surface horizontal.
He finds that there is a hole in the drum 25 cm above the ground.



How much water will the trough hold without water leaking from the hole?

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

Assessor's use only

Question number	