For Supervisor's use only

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90287

NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

National Certificate of Educational Achievement
TAUMATA MĀTAURANGA Ā-MOTU KUA TAEA

Level 2 Mathematics, 2005

90287 Use coordinate geometry methods

Credits: Two
2.00 pm Thursday 24 November 2005

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 a copy of Formulae Sheet L2-MATHF.

You should answer ALL the questions in this booklet.

Show ALL working.

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 2–8 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**
Use coordinate geometry methods.	Solve problems involving coordinate geometry methods.	Solve extended problems involving coordinate geometry methods.
Overall Level of Performance		

You are advised to spend 25 minutes answering the questions in this booklet.

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SEARCH AND RESCUE

QUESTION ONE

Calculate the distance between the points (3,–4) and (2,5).

QUESTION TWO

Find the equation of the line joining the points (3,–4) and (2,5).

QUESTION THREE

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Find the equation of the line that is parallel to the line $y = \frac{x}{4} - 3$ and passes through the point (–1,7).

QUESTION FOUR

Prove that the points A (–7,–4), B (5,2) and C (7,3) are collinear.
Plotting points is **NOT** sufficient.

QUESTION FIVE

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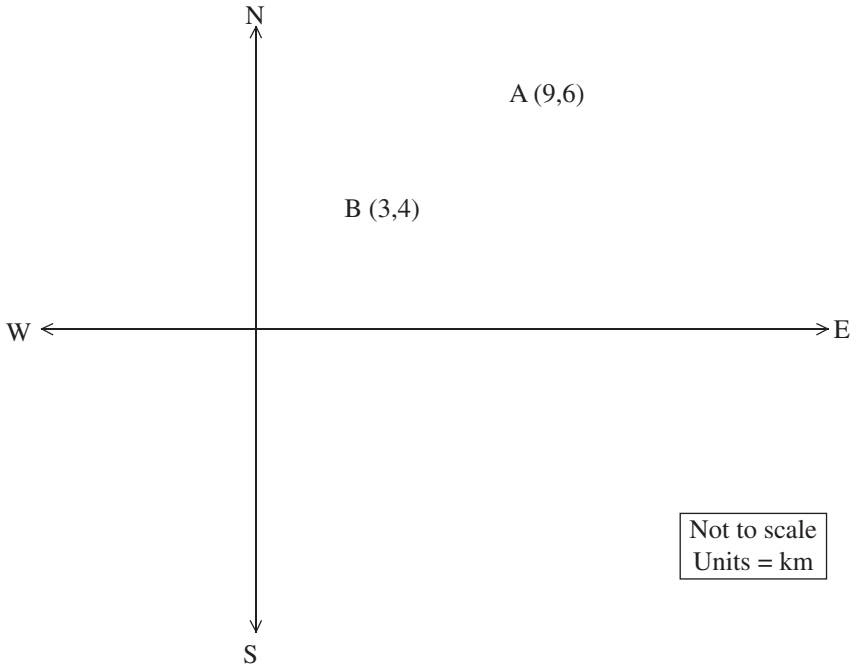
A Search and Rescue team is looking for a lost child, and is using a map.
The Base B is at the point (3,4) on the map.
The Checkpoint A is at the point (9,6) on the map.



(a) The Search and Rescue team starts walking in a straight line from the Base B to Checkpoint A.

When the team is **halfway** between Base B and Checkpoint A, it turns left and walks at right angles to the line AB.

Find the equation of the line that the Search and Rescue team is now walking on,
ie find the equation of the perpendicular bisector of the line AB.

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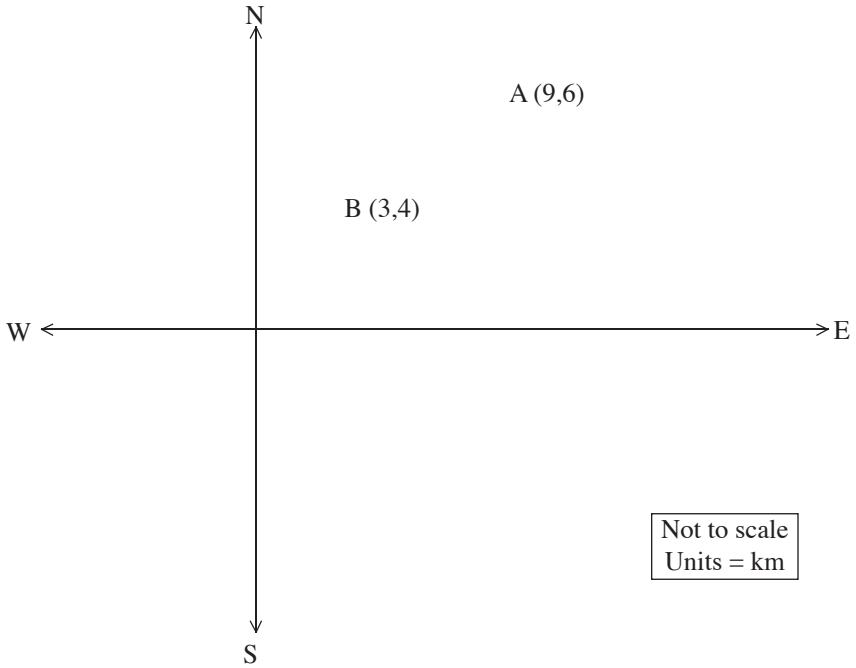
(b) A helicopter sights the lost child.
The child is directly north of Base B and $\sqrt{20}$ km from a hut. The hut is at the point (5,7).

Find the **coordinates** of the lost child.



QUESTION SIX

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The medians of a triangle intersect at a point called the centroid.

Find the coordinates of the centroid, C, of the triangle PQR where the vertices of the triangle are P (–5,4), Q (2,5) and R (–6,9).

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

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Question number

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

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Question number