For Supervisor's use only

2

90287

NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

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

Level 2 Mathematics, 2006

90287 Use coordinate geometry methods

Credits: Two
2.00 pm Wednesday 29 November 2006

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 30 minutes answering the questions in this booklet.

Assessor's use only

QUESTION ONE

(a) Calculate the **midpoint** of the line joining the points (4,5) and (6,–1).

(b) Find the **equation** of the line joining the points (4,5) and (6,–1).

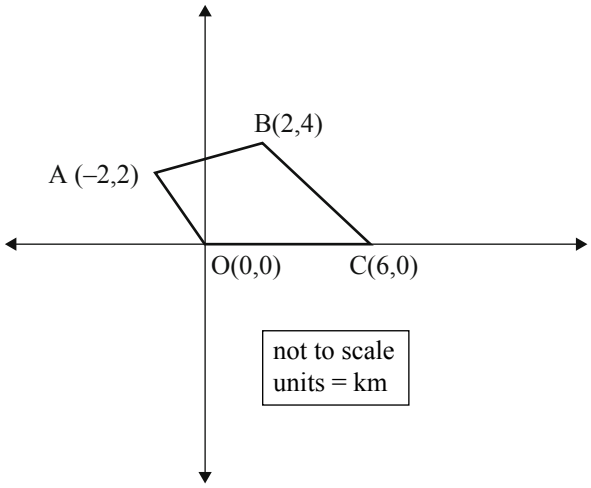
(c) Find the **equation** of the line that is **perpendicular** to the line $y = 2x - 3$ and that passes through the point $(6,-1)$.

Assessor's use only

QUESTION TWO

Assessor's use only

A mountain bike track has been marked by four points O(0,0), A(–2,2), B(2,4) and C(6,0) relative to a set of axes on a map.



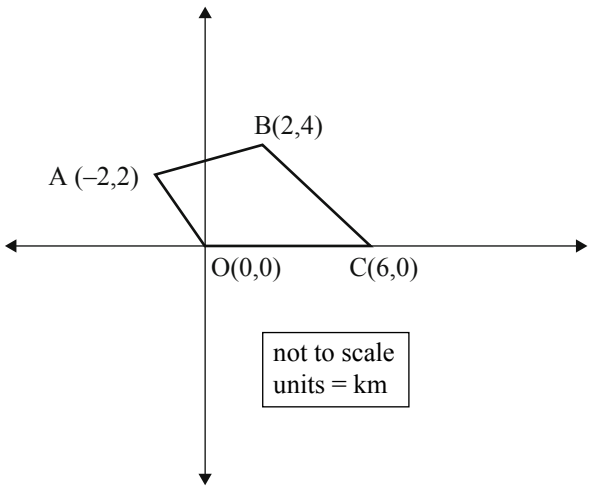
(a) A first aid tent is to be positioned at the intersection of the diagonals of the quadrilateral OABC.

Find the **coordinates** of the first aid tent.

Assessor's use only

(b) Vanessa is checking out the track before the race.
She decides to take a shortcut from B back to the track OA.

If she could take the shortest path, find the coordinates of the point where her shortcut path meets the track OA.



QUESTION THREE

Assessor's use only

Prove that the triangle with vertices A(1,1), B(3,2) and C(0,8) is a right-angled triangle.
Plotting points is **NOT** sufficient.

QUESTION FOUR

Assessor's use only

A(8,1) and B(k,−4) are two points.
The perpendicular bisector of AB cuts the y-axis at −3.

Find the **two** possible values of k.

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

Assessor's use only

Question number	