For Supervisor's use only

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90152

NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

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

Level 1 Mathematics, 2004

90152 Solve right-angled triangle problems

Credits: Two
9.30 am Thursday 11 November 2004

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

You should answer ALL the questions in this booklet.

You should show ALL working.

If you need more space for any answer, use the page 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.

Achievement Criteria *For Assessor's use only*		
Achievement	**Achievement with Merit**	**Achievement with Excellence**
Solve right-angled triangle problems. ☐	Solve problems in practical situations involving right-angled triangles. ☐	Solve problems in word or 3D situations. ☐
Overall Level of Performance ☐		

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You are advised to spend 30 minutes answering the questions in this booklet.

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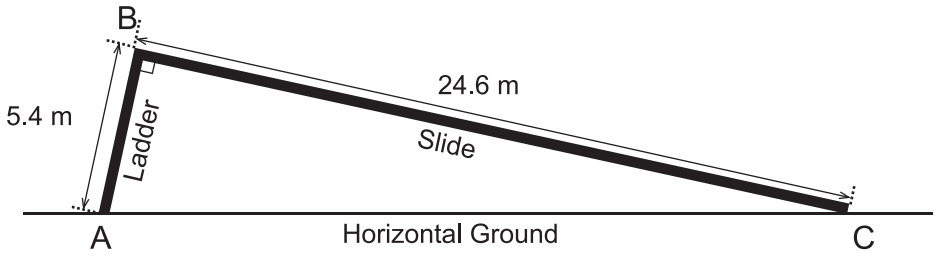
The Adventure Park

You should show **ALL** working.

QUESTION ONE

A diagram of the water slide at the adventure park is shown below.



The ladder, **AB**, is 5.4 m long.
The slide, **BC**, is 24.6 m long.

Calculate **AC**, the distance between the bottom of the ladder and the bottom of the slide.

AC = _____ m

QUESTION TWO

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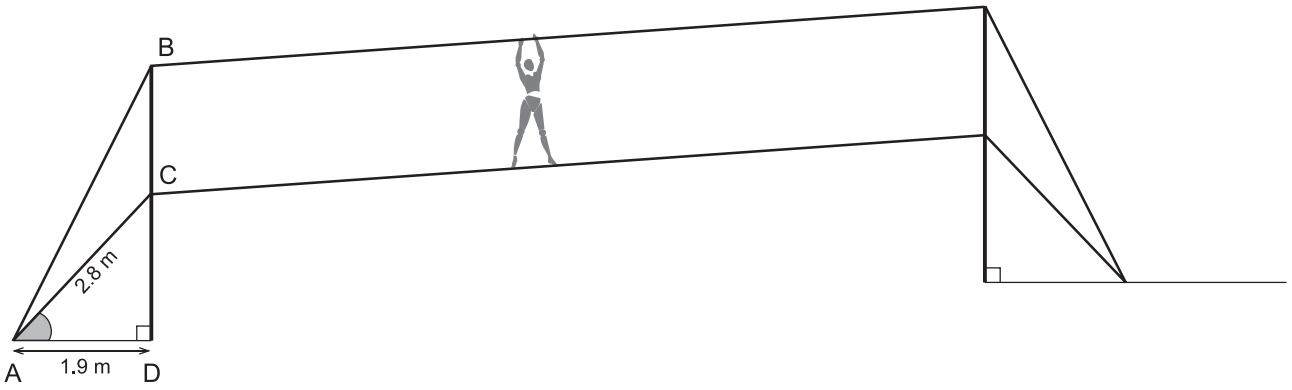
A high-wire confidence course is built as shown in the diagram.
The post **BD** is vertical.
AB and **AC** are support wires.
AD is level ground.
AC = 2.8 m.
AD = 1.9 m.



(a) Find **CD**, the height of **C** above the ground.

CD = _____ m

(b) Find angle **DAC**, the angle the support wire, **AC**, makes with the level ground.

DAC = _____ °

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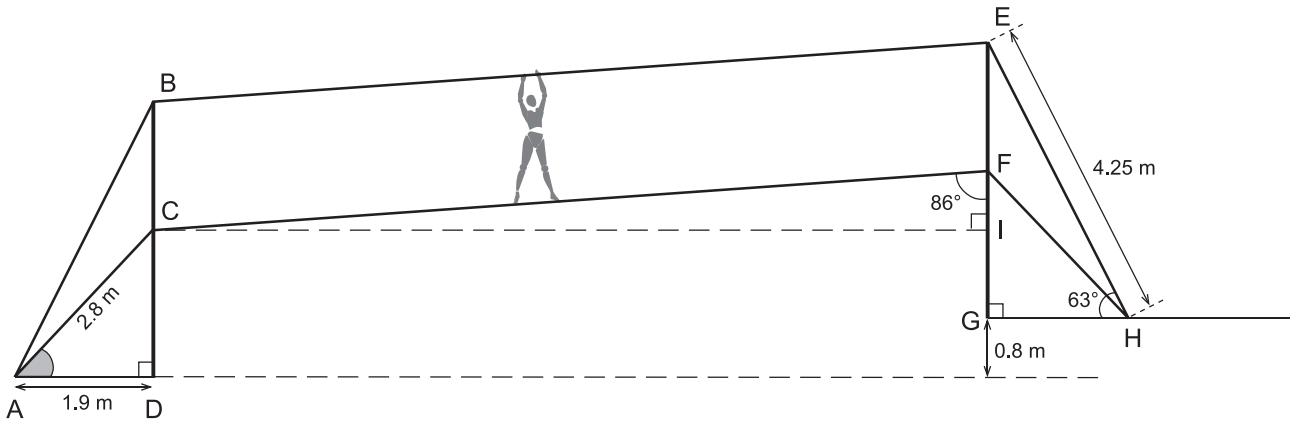
The diagram below has more detail of the high-wire confidence course.
The posts **BD** and **EG** are vertical and **BD** = **EG**.
The high-wire **CF** and grab-wire **BE** are parallel and straight.
AB, **AC**, **HE**, and **HF** are support wires.
AD is level ground.
GH is level ground.
FI = 0.8 m.
Angle **GHE** = 63º.



(c) Find **EG**, the height of the right-hand post.

EG = _____ m

(d) Find **CF**, the length of the high-wire.

CF = _____ m

QUESTION THREE

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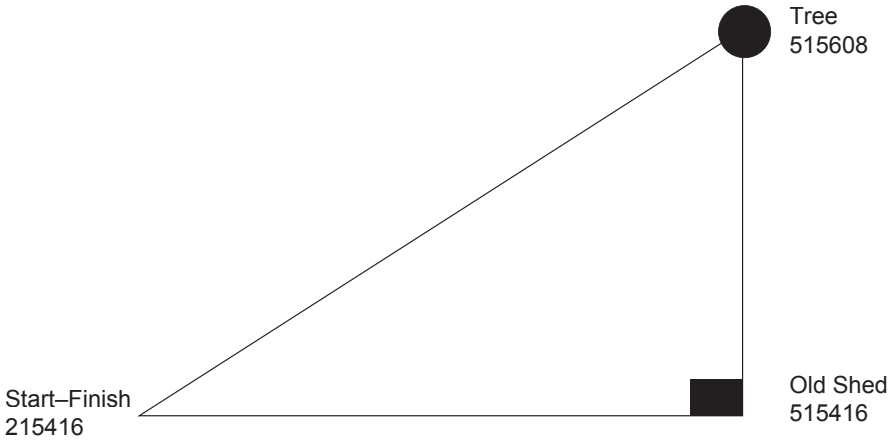
A grid reference is a way of defining the position of an object.
The first three digits are the number of metres East of a fixed point.
The last three digits are the number of metres North of the same fixed point.
The grid reference 123456 means the object is 123 m East and 456 m North of the fixed point.



A triangular orienteering course is set up at the Adventure Park.
The Start–Finish point is at grid reference 215416.
The first turn is at the Old Shed, grid reference 515416.
The second turn is at the Tree, grid reference 515608.

(a) Find the length of the orienteering course.

(b) Find the bearing to run from the Tree back to the Finish.

QUESTION FOUR

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Hari wants to set up a 1500 m orienteering course.

The Start–Finish line is at grid reference 251132.
The first leg is 600 m long.
The first turn is at grid reference 631596.
The second leg is 250 m long on a bearing of 309º.

Is this a 1500 m course? **You must justify your answer with working.**

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

Question Number

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