

Surname						Other Names					
Centre Number						Candidate Number					
Candidate Signature											

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General Certificate of Secondary Education
June 2006

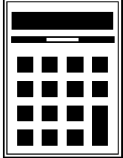


**MATHEMATICS (MODULAR) (SPECIFICATION B)
Module 3 Higher Tier Section A**

33003/HA

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Wednesday 28 June 2006 9.00 am to 9.40 am

<p>For this paper you must have:</p> <ul style="list-style-type: none"> • a calculator • mathematical instruments • a treasury tag 	
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For Examiner's Use			
Section A		Section B	
Pages	Mark	Pages	Mark
2–3		2–3	
4–5		4–5	
		6–7	
Total Section A			
Total Section B			
TOTAL			
Examiner's Initials			

Time allowed for Section A: 40 minutes

Instructions

- Use blue or black ink or ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- Answer the questions in the spaces provided.
- Use a calculator where appropriate.
- Do all rough work in this book.
- This paper is divided into two sections: Section A and Section B.
- After the 40 minutes allowed for Section A, you must put your calculator on the floor under your seat. You will then be given Section B.
- When you have answered Section B you may work again on Section A but you may **not** use your calculator. It must remain on the floor under your seat.
- At the end of the examination tag Section A and Section B together with Section A on top.

Information

- The maximum mark for Section A is 32.
- The marks for questions are shown in brackets.
- You may ask for more answer paper and graph paper. These must be tagged securely to this answer book.

Advice

- In all calculations, show clearly how you work out your answer.

Answer **all** questions in the spaces provided.

1 (a) Roma invests £400 for three years at 4% compound interest.

Show that, at the end of the three years, she has a total investment of £449.95 to the nearest penny.

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(3 marks)

(b) Calculate the percentage increase from £400 to £449.95

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Answer % (3 marks)

2 Vivian and Jack shared the driving to their holiday cottage in the ratio 3 : 5
Jack drove further than Vivian.
The total distance travelled was 440 miles.

How far did Jack drive?

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Answer miles (2 marks)

3 There are 22 million houses in the United Kingdom.

(a) On average each of these 22 million houses has a value of £82 000.

What is the total value of all these houses?
Give your answer in standard form.

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Answer £ (2 marks)

(b) 7700 of the 22 million houses have a value of over £1 million.

What percentage of the total number of houses has a value of over £1 million?
Give your answer in standard form.

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Answer % (3 marks)

4 A DVD player is on sale at £97.20
This is a 10% reduction of the previous price.

What was the price of the DVD player before the reduction?

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Answer £ (3 marks)

- 5 In a motor company the sales staff are paid a weekly bonus according to how many cars they sell in that week.

The bonus paid (B) is proportional to the square of the number of cars sold (N).

- (a) Lydia sells three cars in a week.
She receives a bonus (B) of £180.

Show that the equation connecting B and N is $B = 20N^2$

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(2 marks)

- (b) Complete the bonus table.

Number of cars sold per week (N)	Bonus (B), £
0	0
1	
2	
3	180
4	
5	

(2 marks)

- (c) Tyrone said that his bonus for the last two weeks was a total of £810.
Peter said that was not possible.
Peter said, "Your bonus could have been £800 or £820 but not £810."

Show that Peter is correct.

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(3 marks)

6 Rationalise the denominator of $\frac{12}{\sqrt{18}}$

Simplify your answer as much as possible.

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Answer (4 marks)

7 Jose has 10 bottles containing fizzy drink.
Each bottle contains 2 litres of fizzy drink to the nearest 10 millilitres.
He pours the drink into cups.
Each cup holds 210 millilitres to the nearest 5 millilitres.

What is the maximum number of cups that he can fill?

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Answer (5 marks)

END OF SECTION A

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