

Surname						Other Names					
Centre Number						Candidate Number					
Candidate Signature											

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General Certificate of Secondary Education  
June 2006

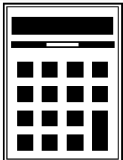


**MATHEMATICS (MODULAR) (SPECIFICATION B)**  
**Module 1 Higher Tier Section A**

**33001/HA**

**H**

Monday 19 June 2006 1.30 pm to 1.55 pm

<p><b>For this paper you must have:</b></p> <ul style="list-style-type: none"> <li>• a scientific calculator</li> <li>• mathematical instruments</li> <li>• a treasury tag</li> </ul>	
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For Examiner's Use			
Section A		Section B	
Number	Mark	Number	Mark
1		5	
2		6	
3		7	
4		8	
Total Section A			
Total Section B			
TOTAL			
Examiner's Initials			

Time allowed for Section A: 25 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 25 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 20.
- 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.

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

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1 There are 475 girls in a school.  
The probability that a girl studies French is 0.6

(a) How many girls study French?

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Answer ..... (2 marks)

(b) Altogether there are 900 pupils in the school.  
Every pupil studies either French or German.  
There are no pupils who study both.  
The probability that a boy studies German is 0.52

Calculate the total number of pupils who study French.

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Answer ..... (3 marks)

5
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- 2 A three-sided spinner has sections numbered 1, 2 and 3.  
It is spun 20 times.  
The results are shown below.

2 1 1 3 1 2 3 3 2 3  
1 2 3 2 2 3 2 3 1 3

.....

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- (a) Use these results to calculate the relative frequency of each number.

<b>Number</b>	1	2	3
<b>Relative frequency</b>			

(2 marks)

- (b) The following table shows the relative frequency of each number after 100 spins.

<b>Number</b>	1	2	3
<b>Relative frequency</b>	0.14	0.45	0.41

Which table gives the best estimate for the probability of spinning the number 1?  
Give a reason for your answer.

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(2 marks)

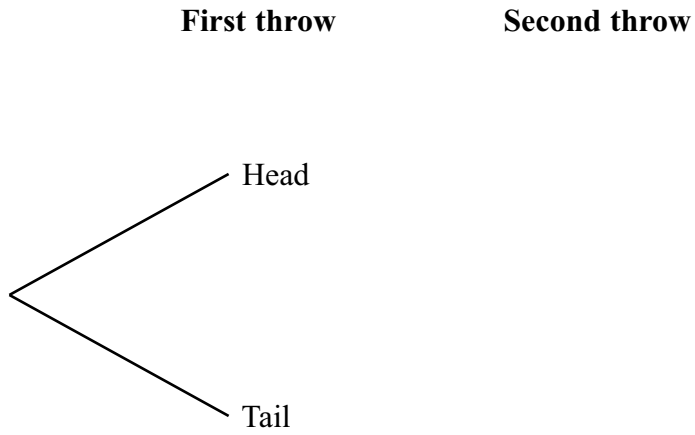
4
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**Turn over for the next question**

**Turn over** 

- 3 Jamie has a biased coin.  
The probability that it will land on heads is  $\frac{2}{5}$   
Jamie throws the coin twice.

(a) Complete the tree diagram to show all the probabilities.



(3 marks)

(b) Calculate the probability that the coin lands on heads at least once.

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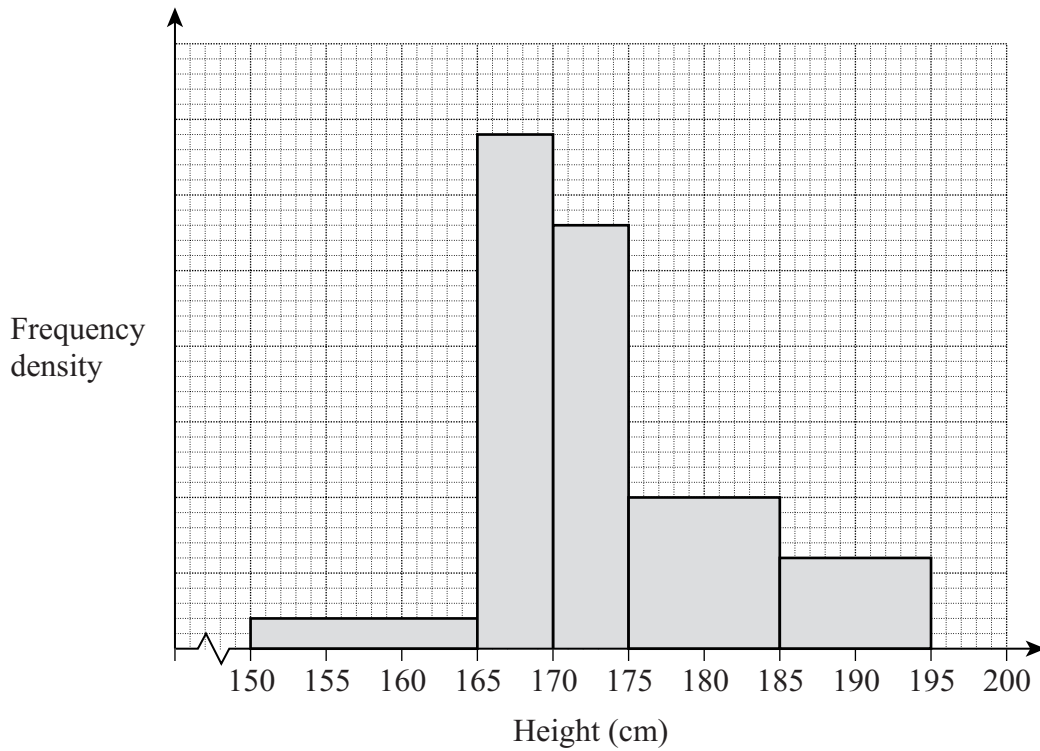
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Answer ..... (3 marks)

4 The histogram shows the heights of a number of people who wanted to be dancers in a show.



There were 17 people between the heights of 165 cm and 170 cm.  
Those people below 160 cm or above 182 cm were not accepted for the show.

Calculate an estimate of the number of people who were **not** accepted.

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Answer ..... (5 marks)

5
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**END OF SECTION A**

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