

**OXFORD CAMBRIDGE AND RSA EXAMINATIONS**  
**General Certificate of Secondary Education**

**MATHEMATICS B (MEI)**  
**PAPER 2 SECTION B**  
**INTERMEDIATE TIER**

**1968/2315B**

Wednesday

**15 JUNE 2005**

Morning

1 hour

Candidates answer on the question paper.

Additional materials:

Geometrical instruments

Scientific calculator

Tracing paper (optional)

Candidate Name	Centre Number	Candidate Number												
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**TIME** 1 hour

**INSTRUCTIONS TO CANDIDATES**

- Write your name, Centre number and candidate number in the boxes above.
- Answer **all** the questions.
- Write your answers, in blue or black ink, in the spaces provided on the question paper.
- Read each question carefully and make sure you know what you have to do before starting your answer.
- Show all your working. Marks may be given for working which shows that you know how to solve the problem, even if you get the answer wrong.

**INFORMATION FOR CANDIDATES**

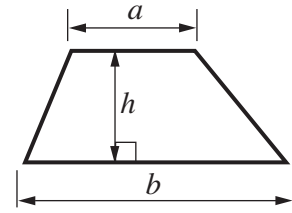
- The number of marks is given in brackets [ ] at the end of each question or part question.
- Unless otherwise instructed in the question, take  $\pi$  to be 3.142 or use the  $\pi$  button on your calculator.
- The total number of marks for this section is 50.
- Section B starts with question 12.

<b>FOR EXAMINER'S USE</b>	
<b>Section B</b>	

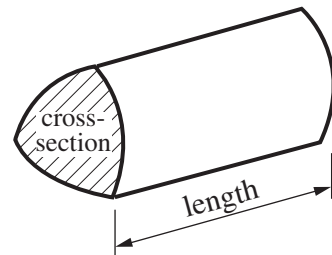
**This question paper consists of 10 printed pages and 2 blank pages.**

**Formulae Sheet: Intermediate Tier**

**Area of trapezium** =  $\frac{1}{2}(a + b)h$



**Volume of prism** = (area of cross-section)  $\times$  length



12 Kate went on holiday to Uganda.  
The exchange rate was 2855 Ugandan shillings to £1.

(a) She changed £250 into Ugandan shillings.

How many Ugandan shillings did she receive?

(a) .....[2]

(b) She bought a bag for 7000 Ugandan shillings.

How much was this in pounds?

(b) £ .....[2]

13 (a) Find the next set of coordinates in this sequence.

(4, 2.3)    (2, 1.4)    (0, 0.5)    (-2, -0.4)

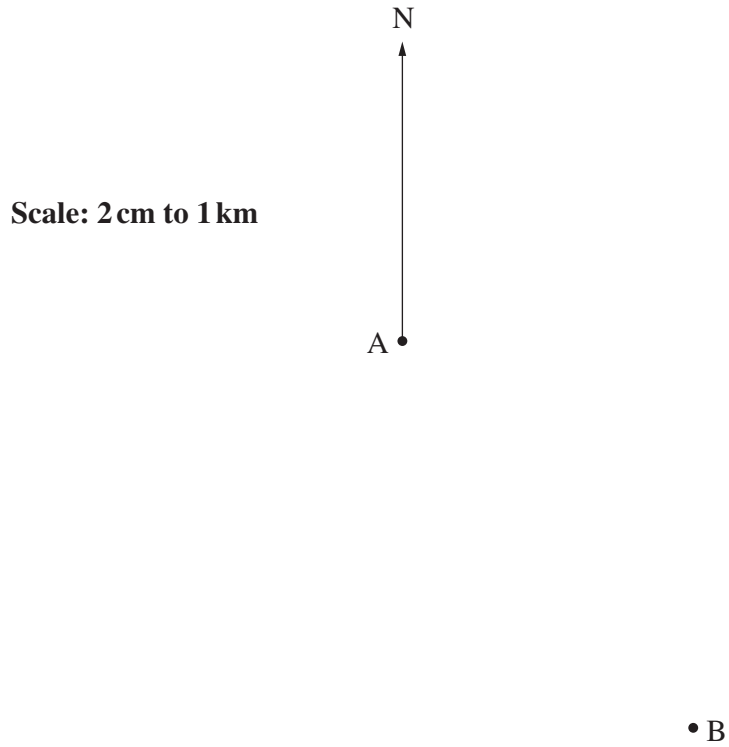
(a) (....., .....) [2]

(b) Describe two patterns in the sequence.

1 .....[1]

2 .....[1]

14 The scale drawing shows Arwick (A) and Borton (B).



(a) Find the bearing and actual distance of Borton from Arwick.

(a) Bearing .....° [1]

Distance .....km [1]

(b) Calney is 4.3 km from Arwick on a bearing of 205°.

Find and mark the position of Calney (C). [2]

- 15** Mrs Dent wants her garden to be improved.  
The cost of the design for the garden is £700.  
The materials and plants cost £1200.  
The cost of labour is £90 per day.

(a) Write a formula for the total cost, £ $C$ , of her garden when  $n$  days labour are needed.

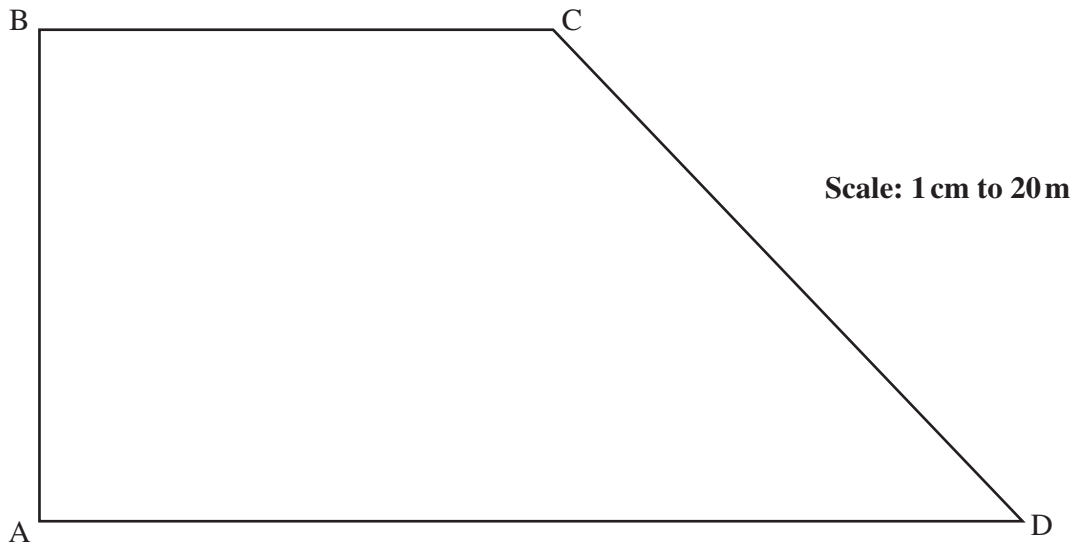
(a) .....[2]

(b) The total cost is £2395.

Write an equation and solve it to find how many days labour were needed.

(b) .....[3]

16



The scale drawing shows Southmore Park.  
A celebrity is visiting to plant a tree in the park.  
The tree will be planted more than 50 m from B.  
It will be more than 40 m from CD.

Shade the region where the tree can be planted.

[4]

- 17 Jim was travelling at 100 km per hour.  
He sneezed and was distracted for 1.5 s.

How far did he travel in that time?  
Give your answer in metres.

.....m [4]

- 18 Use trial and improvement to find the solution of the equation

$$x^3 - 2x = 6.$$

Give your answer correct to 1 decimal place.  
Show clearly your trials and their outcomes.

.....[4]

**19** Jo invests £230 in a savings account.  
It has an interest rate of 4.7% per year, with interest added at the end of each year.  
She leaves her money there for 4 years.

**(a)** Explain why the amount of money in the account at the end of 4 years is given by  $£230 \times 1.047^4$ .

.....  
.....  
.....[2]

**(b)** Calculate this amount.

**(b)** £ .....[1]

**20** The population of Russia was estimated as 146 000 000.

**(a)** Write 146 000 000 in standard form.

**(a)** .....[1]

The electricity consumption in a year for Russia was  $7.02 \times 10^{11}$  kilowatt hours.

**(b)** Calculate the average consumption per person.  
Give your answer to a suitable degree of accuracy.

**(b)** .....kilowatt hours [3]



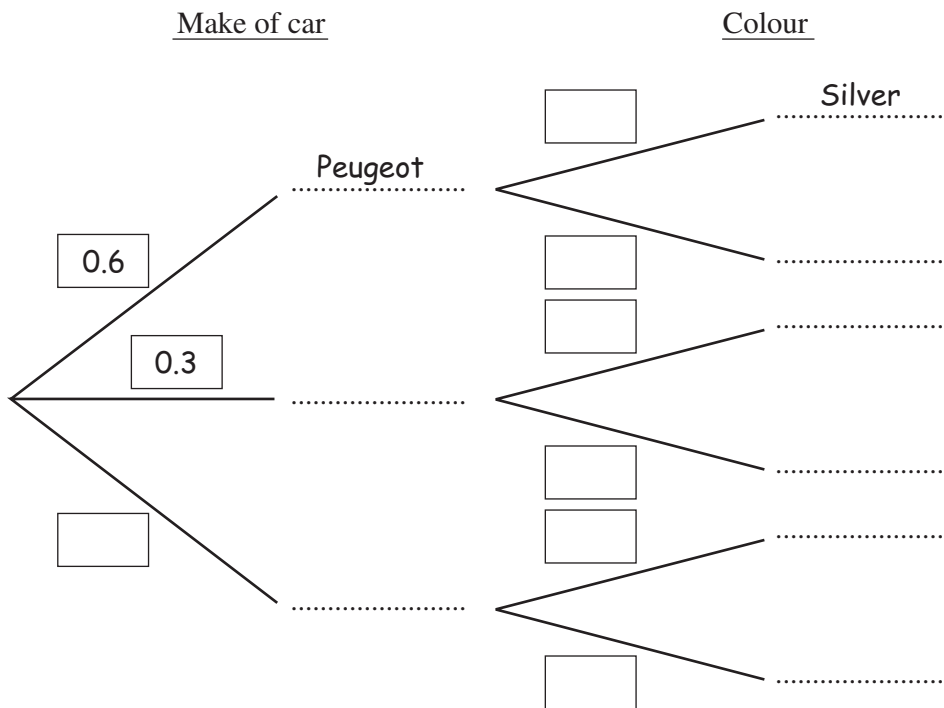
21 Jacinda is choosing a new car.  
The probability that she will choose a Peugeot is 0.6.  
The probability that she will choose a Ford is 0.3.

(a) What is the probability that she will choose another make?

(a) .....[1]

The probability that she will choose a silver car is 0.8.  
This is independent of the make of car.

(b) Complete this tree diagram.



[2]

(c) Calculate the probability that she chooses

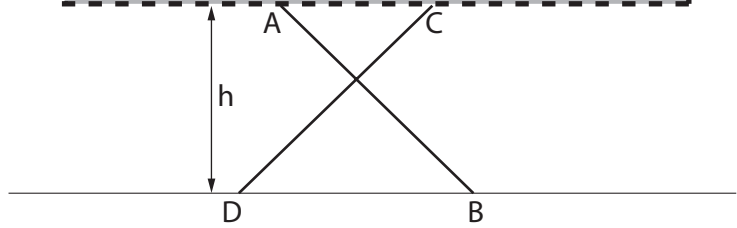
(i) a silver Peugeot,

(c)(i) .....[2]

(ii) a car that is not a Ford and is not silver.

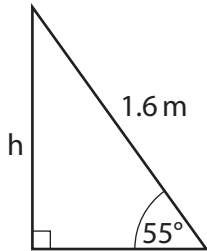
(ii) .....[3]

An image has been removed due to third party copyright restrictions  
 Details: An image of a keyboard



22 The height of this keyboard can be adjusted. The supports AB and CD are 1.6 m long. The height,  $h$ , of the keyboard can vary.

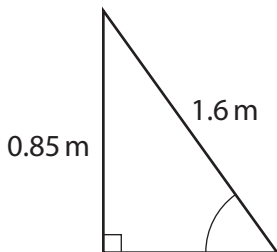
(a) Calculate the height,  $h$ , of the keyboard when the supports make an angle of  $55^\circ$  with the floor.



Not to scale

(a) .....m [3]

(b) Calculate the angle which the supports make with the floor when the height of the keyboard is 0.85 m.



Not to scale

(b) .....° [3]



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