OCR
RECOGNISING ACHIEVEMENT

OXFORD CAMBRIDGE AND RSA EXAMINATIONS
General Certificate of Secondary Education

MATHEMATICS B (MEI) 1968/2315B

PAPER 2 SECTION B
INTERMEDIATE TIER

Monday **12 JUNE 2006** Morning 1 hour

Candidates answer on the question paper.
Additional materials:
Geometrical instruments
Scientific calculator
Tracing paper (optional)

Candidate Name	Centre Number	Candidate Number

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 π to be 3.142 or use the π button on your calculator.
- The total number of marks for this section is 50.
- Section B starts with question 10.

FOR EXAMINER'S USE	
Section B	

This question paper consists of 11 printed pages and 1 blank page.

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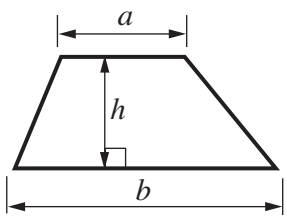
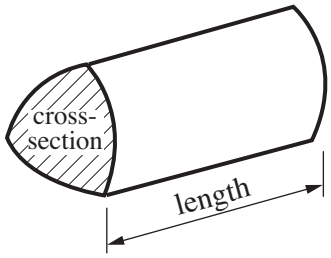
[Turn over

Formulae Sheet: Intermediate Tier

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



Volume of prism = (area of cross-section) × length



10 Sarah bought 5.4 kg of potatoes at 75p per kg.
She also bought some peaches at 39p each.
She gave the shop assistant a £10 note and received £1.27 change.

How many peaches did she buy?
Show your method clearly.

.....[4]

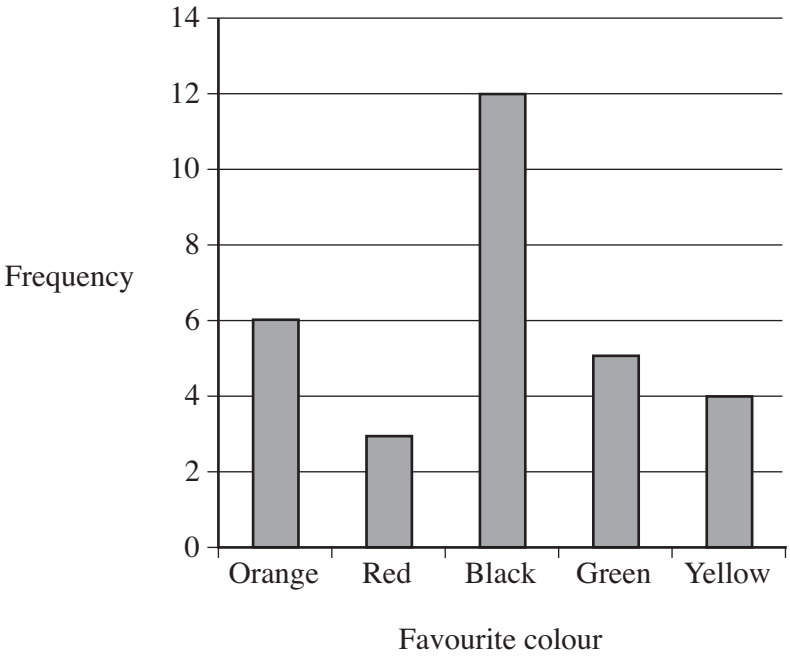
11 A regular polygon has 9 sides.

Calculate the size of one of its exterior angles.

.....° [2]

[Turn over

12 **(a)** There are 30 students in class 10A.
They were each asked which was their favourite colour fruit gum.
The results are represented on this bar chart.



A student is chosen at random from this class.

What is the probability that their favourite colour fruit gum is

(i) black,

(a)(i) .....[2]

(ii) orange or green?

(ii) .....[2]

(b) Students in class 10T were asked the same question.
This table shows favourite colour fruit gums and their probabilities, for a student chosen at random from this class.

Colour	Probability
Orange	0.25
Red	0.15
Black	0.3
Green	0.2
Yellow	

(i) Complete the table. [2]

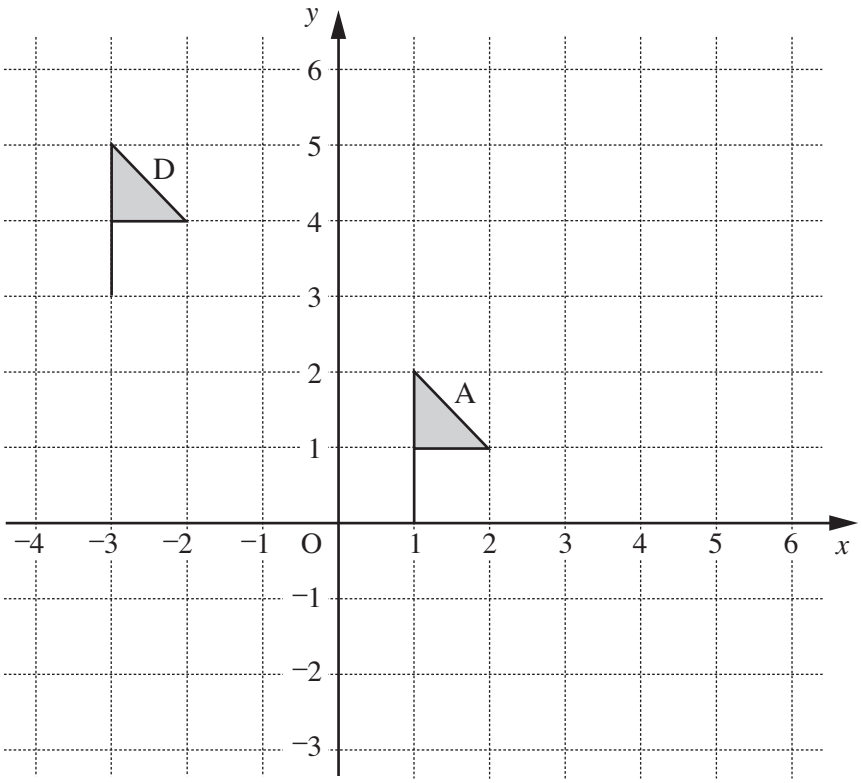
(ii) There are 20 students in class 10T.

How many of them have red as their favourite colour fruit gum?

(b)(ii) .....[2]

[Turn over

13



(a) Reflect flag A in the y-axis. Label the image B. [1]

(b) Reflect flag A in the line $x = 3$. Label the image C. [2]

(c) Describe fully the **single** transformation which maps flag A onto flag D.

.....

.....[3]

14 The scale drawing shows Sumita's garden.
There is a rotary washing line at R and a tree at T.

Scale: 1 cm to 1 m

Sumita wants to put a netball hoop on a stand in the garden.
It must be at least 4 m from the rotary washing line, R.
She wants it to be nearer to R than to T.

Using ruler and compasses, construct and shade the region where the netball hoop can be placed.
Leave in your construction lines. [3]

15 **(a)** Simplify.

(i) $8a + 5b - 3a + b$

(a)(i) .....[2]

(ii) $6c^2 \times 5c^3$

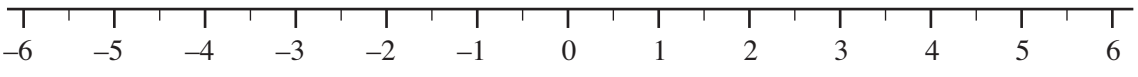
(ii) .....[2]

(iii) $d(3d - 4) + 6d$

(iii) .....[2]

(b) Solve this inequality and represent your solution on the number line.

$2x + 1 < 4$



[3]

16 **(a)** Calculate.

(i) $79.6 - 31.4 \times 2.3$

(a)(i) .....[1]

(ii) $\dfrac{3.9}{7.8 - 2.6}$

(ii) .....[1]

(b) A contractor puts up his charges by 5% each January.
In December **2003** he charged £200 per day.

How much did he charge per day in February **2006**?

(b) £ .....[3]

[Turn over

17 Here are some newspaper reports about the final of the Rugby World Cup in 2003.

- During the final, there were 10 million **fewer** vehicles on the roads in the UK. This was equivalent to 60% **fewer** vehicles than normal.
- At half-time there was a power surge of 2100 megawatts in the UK as 850 000 electric kettles were switched on by those watching on TV.

(a) How many vehicles would normally have been on the roads in the UK?

(a) .....million [3]

(b) 1 megawatt is 10^6 watts.

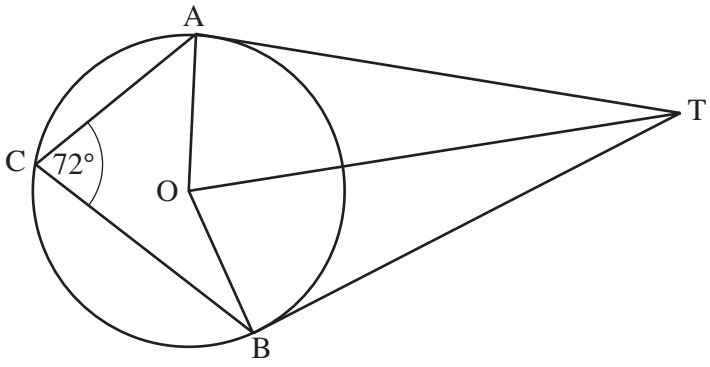
How many watts is 2100 megawatts?
Express your answer in standard form.

(b) .....[2]

(c) Use the data in this question to find how many watts an electric kettle needs, on average.

(c) .....[2]

18 In the diagram, O is the centre of the circle.
Tangents from T meet the circle at A and B.
C is a point on the circumference.
Angle ACB = 72°.



Not to scale

(a) Complete the following.

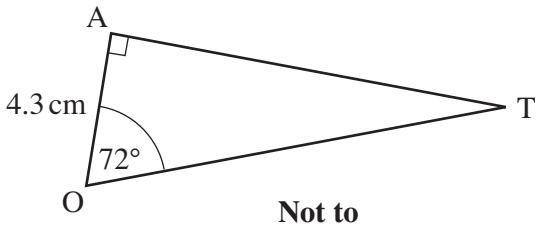
Angle OAT = 90° because .....

.....[1]

Angle AOB = 144° because .....

.....[1]

(b) The radius of the circle is 4.3 cm.
Angle AOT = 72°.
Calculate the length of AT.
Give your answer to a sensible degree of accuracy.



Not to scale

(b) .....cm [4]

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