

OXFORD CAMBRIDGE AND RSA EXAMINATIONS
General Certificate of Secondary Education

MATHEMATICS B (MEI)
PAPER 1 SECTION A
INTERMEDIATE TIER

1968/2312A

Monday **5 JUNE 2006** Afternoon 45 minutes

Candidates answer on the question paper.

Additional materials:
 Geometrical instruments
 Tracing paper (optional)

Candidate Name	Centre Number	Candidate Number												
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TIME 45 minutes

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.
- The total number of marks for this section is 36.



WARNING

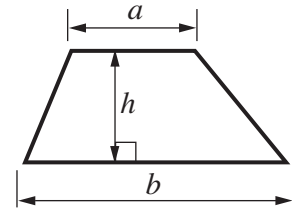
You are not allowed to use a calculator in Section A of this paper.

FOR EXAMINER'S USE	
Section A	
Section B	
TOTAL	

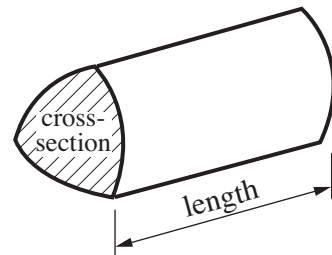
This question paper consists of 8 printed pages.

Formulae Sheet: Intermediate Tier

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



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



1 Work out.

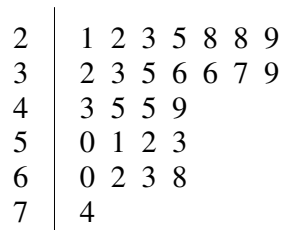
(a) 10^3

(a)[1]

(b) $2^4 \times 5^2$

(b)[2]

2 The stem and leaf diagram shows the amount, in pounds, spent on fuel by some motorists last week.



Key 2 | 3 = 23

(a) How many motorists were asked?

(a)[1]

(b) Find the median amount spent.

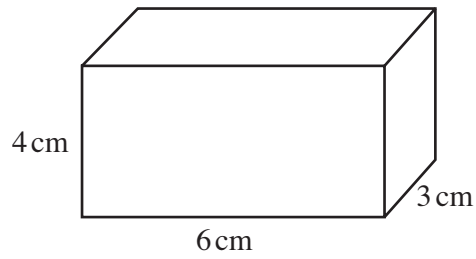
(b) £[1]

- 3 A shape has equal sides of length 3 cm.
Its perimeter is 12 cm.

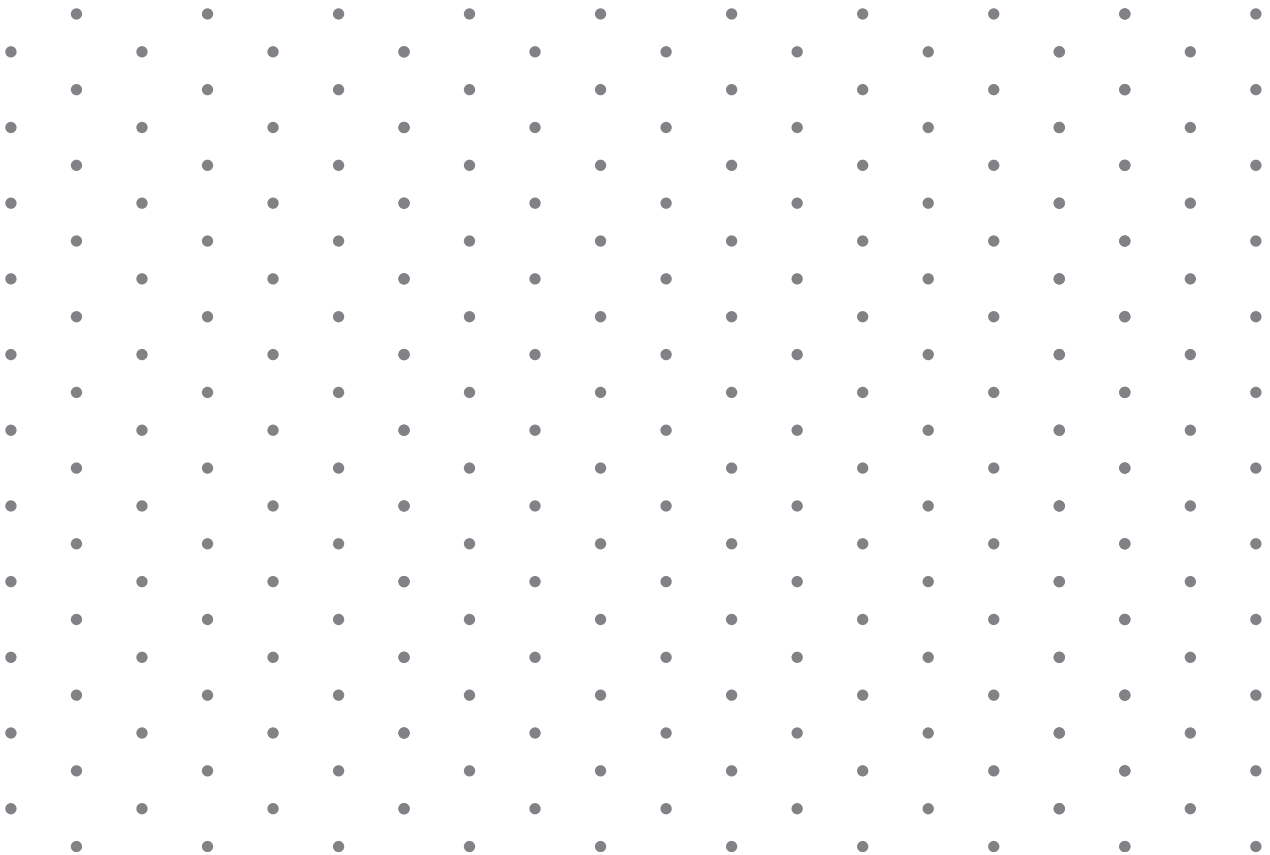
Write down the names of the two possible shapes it could be.

..... or [2]

4



- (a) Make a full-size drawing of this cuboid on the isometric grid.



[2]

(b) Work out the total surface area of this cuboid.

(b)cm² [2]

5 (a) Find the value of $5x - 3y$ when $x = 6$ and $y = -4$.

(a)[2]

(b) Solve.

$$5(2x - 4) = 15$$

(b)[3]

6 During the first half of the football season, Ray scores 12 goals and Charlie scores 8 goals.

- (a) They are paid a bonus for each goal scored.
Ray received a bonus of £4800.

How much did Charlie receive?

(a) £.....[3]

- (b) In the second half of the season, they each score 6 more goals.

What is the ratio of Ray's goals to Charlie's goals for the whole season?
Give your answer in its simplest form.

(b) :[2]

- 7 (a) Expand.

$$3(2x - 7)$$

(a)[1]

- (b) Factorise.

$$9a + 12$$

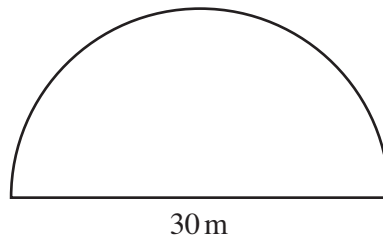
(b)[1]

- (c) Make t the subject of this formula.

$$v = u + at$$

(c)[2]

- 8 The goal area of a hockey pitch is in the shape of a semicircle with diameter 30 m.



- (a) Calculate the total perimeter of the goal area.
Take π to be 3.

(a)m [3]

- (b) Show that the area of the goal area can be written as $112.5 \pi \text{ m}^2$. [2]

TURN OVER FOR QUESTIONS 9 AND 10

9 (a) Write 40 as the product of its prime factors.

(a)[2]

(b) Find the least common multiple (LCM) of 30 and 18.

(b)[2]

10 In this question, h and w represent lengths.

Does the expression $\frac{1}{6} \pi hw^2$ represent a perimeter, an area, a volume or none of these?

Give a reason for your answer.

..... because

.....[2]

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