

**GENERAL CERTIFICATE OF SECONDARY EDUCATION
MATHEMATICS B (MEI)**

B291A

Paper 1 Section A
(Foundation Tier)

**Friday 9 January 2009
Morning**

Duration: 45 minutes

Candidates answer on the question paper

OCR Supplied Materials:

None

Other Materials Required:

- Geometrical instruments
- Tracing paper (optional)



* C O P / T 6 2 4 3 6 *

| | | | |
|--------------------|--|-------------------|--|
| Candidate Forename | | Candidate Surname | |
|--------------------|--|-------------------|--|

| | | | | | | | | | | |
|---------------|--|--|--|--|--|------------------|--|--|--|--|
| Centre Number | | | | | | Candidate Number | | | | |
|---------------|--|--|--|--|--|------------------|--|--|--|--|

INSTRUCTIONS TO CANDIDATES

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- Show your working. Marks may be given for a correct method even if the answer is incorrect.
- Answer **all** the questions.
- Do **not** write in the bar codes.
- Write your answer to each question in the space provided, however additional paper may be used if necessary.

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**.
- This document consists of **12** pages. Any blank pages are indicated.

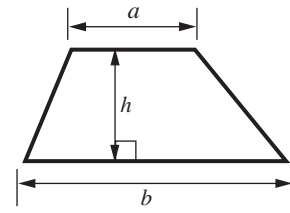
WARNING

No calculator can be used for Section A of this paper

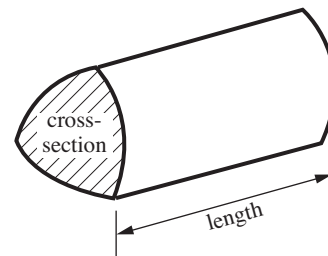
| FOR EXAMINER'S USE | |
|--------------------|--|
| SECTION A | |
| SECTION B | |
| TOTAL | |

Formulae Sheet: Foundation Tier

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









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




PLEASE DO NOT WRITE ON THIS PAGE

1 Michael draws a diagram to show how he spent his money in one week.

| | |
|-----------|--|
| Food |  |
| Clothing |  |
| Hobbies |  |
| Music |  |
| Magazines |  |
| Other |  |

(a) Michael spent £1.50 on music.

In the diagram how much does  represent?

(a) p [1]

(b) On which category did Michael spend most money?

(b) [1]

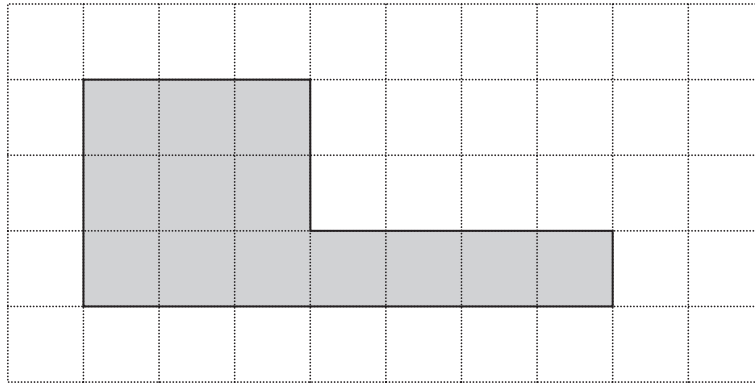
(c) How much more did Michael spend on food than on magazines?

(c) £..... [2]

(d) Why would this symbol with this scale not be suitable for showing an amount of 43p?

.....
 [1]

2 (a) This shape is drawn on a 1 cm grid.



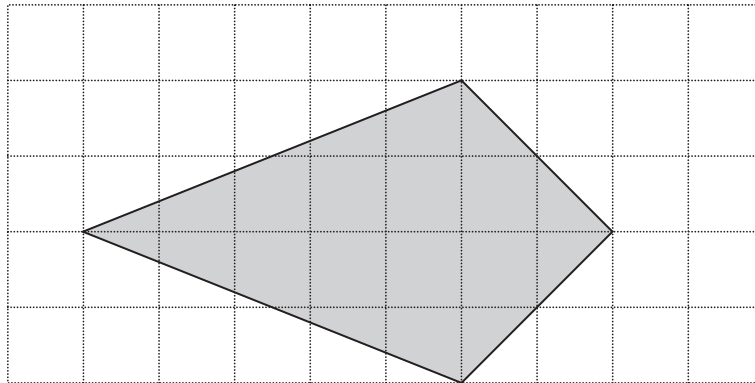
(i) Find the perimeter of the shape.

(a)(i) cm [1]

(ii) Find the area of the shape.

(ii) cm² [1]

(b) Another shape is drawn on a 1 cm grid.

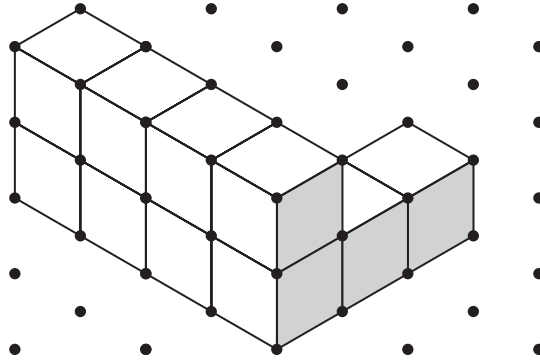


Find the area of this shape.

(b) cm² [2]

- (c) This solid is made from one-centimetre cubes.
There are no hidden cubes.

Find the volume of this solid.



(c) cm^3 [1]

3 The wages, in thousands of pounds, of employees of a company are shown in the table.

For example 11 represents £11000.

| | | | | | | | |
|----|----|----|----|----|----|----|----|
| 11 | 12 | 17 | 17 | 18 | 19 | 19 | 20 |
| 21 | 21 | 21 | 22 | 23 | 26 | 28 | 31 |
| 35 | 36 | 36 | 37 | 38 | 39 | 40 | 40 |
| 41 | 41 | 41 | 42 | 44 | 50 | | |

The company shows the information in this bar-chart.



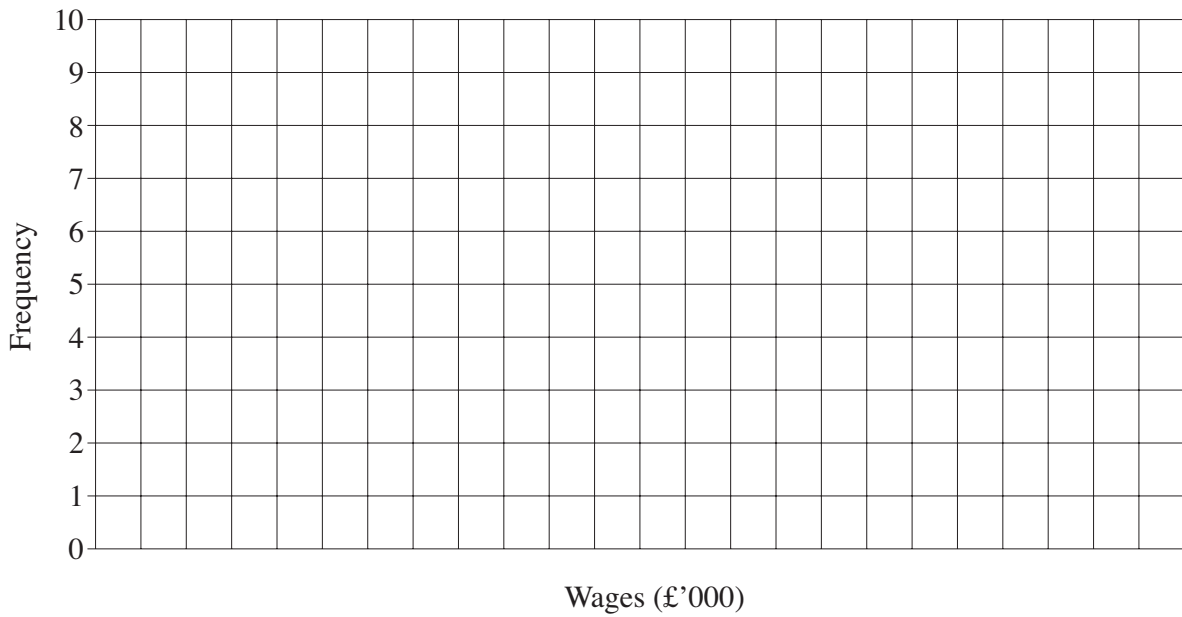
The company claims, “There are similar numbers of employees at every level of the pay structure.”

- (a) (i) Regroup the wages information into £5000 groups instead of £10000 groups. The table has been started for you.

| Wages (£'000) | Number of employees |
|---------------|---------------------|
| 11 to 15 | 2 |
| 16 to 20 | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

[2]

- (ii) Draw a bar chart to show the information in this table.



[3]

- (b) Do you agree with the company's claim about pay?
Use your bar chart to justify your answer.

.....
..... [1]



- (a) What is the value of the 9 in 4937? (a) [1]
- (b) Write down a multiple of 9. (b) [1]
- (c) From this list select two numbers which have a difference of 9.

49 53 57 64 66 68

(c) , [1]

- (d) Complete the sentences using words from this list.

| | | | | |
|-----------|------|--------|-------------|------------|
| cube root | cube | square | square root | reciprocal |
|-----------|------|--------|-------------|------------|

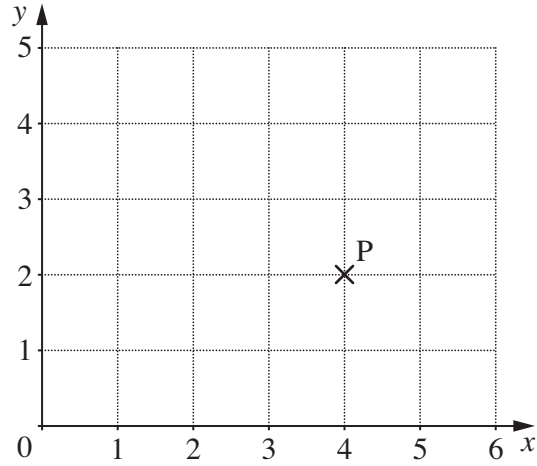
81 is the of 9.

3 is the of 9. [2]

- (e) Insert brackets to make the following statement correct.

$$15 - 5 + 2 + 1 = 9 \quad [1]$$

5



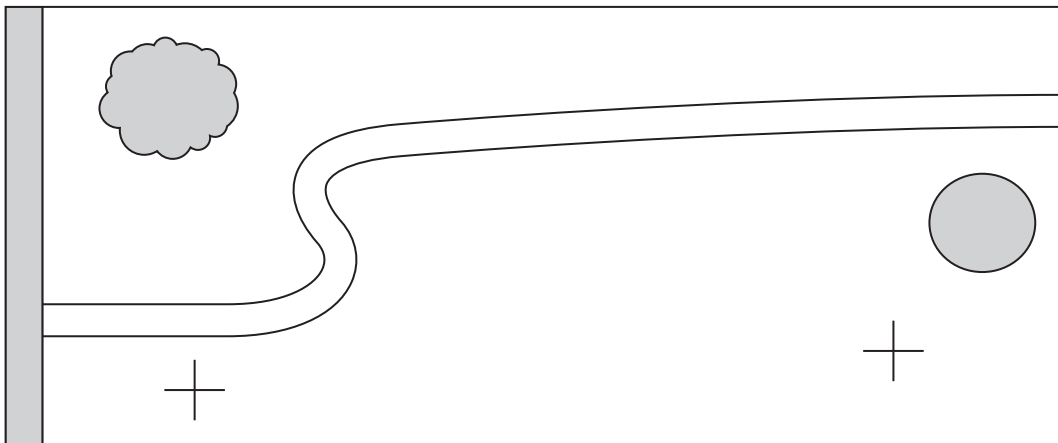
(a) Write down the coordinates of point P.

(a) (.....,) [1]

(b) Draw the line $y = 3$ on the grid.

[1]

6



Here is the plan of a garden.

The crosses show the positions of two posts for a washing line.

The scale is 1 cm represents 2 metres.

What is the actual distance between the two posts?

..... m [2]

TURN OVER FOR QUESTIONS 7 AND 8

- 7 There are 300 sixth formers in a school.
 $\frac{7}{12}$ of these sixth formers are boys.
There are 800 other students in the school.
 $\frac{9}{20}$ of these other students are boys.

How many boys are there in the school altogether?

..... [4]

- 8 (a) Solve the equation $2x - 5 = 8$.

(a) [2]

- (b) Multiply out $x^2(x - 5)$.

(b) [2]

- (c) Simplify.

(i) $a^3 \times a^4$

(c)(i) [1]

(ii) $\frac{m^8}{m^2}$

(ii) [1]

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