

Centre No.						Surname	Initial(s)
Candidate No.						Signature	

Paper Reference(s)
4400/1F

London Examinations IGCSE

Mathematics

Paper 1F

Foundation Tier

Tuesday 2 November 2004 – Morning

Time: 2 hours

Examiner's use only

Team Leader's use only

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Total	

Materials required for examination
 Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser, calculator.
 Tracing paper may be used.

Items included with question papers
 Nil

Instructions to Candidates

In the boxes above, write your centre number and candidate number, your surname, initial(s) and signature.
 The paper reference is shown at the top of this page. Check that you have the correct question paper.
 Answer **ALL** the questions in the spaces provided in this question paper.
 Show all the steps in any calculations.

Information for Candidates

There are 20 pages in this question paper. All blank pages are indicated.
 The total mark for this paper is 100. The marks for parts of questions are shown in round brackets:
 e.g. (2).
 You may use a calculator.

Advice to Candidates

Write your answers neatly and in good English.

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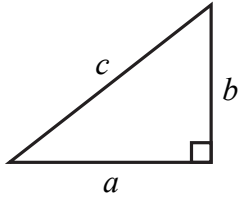
Turn over



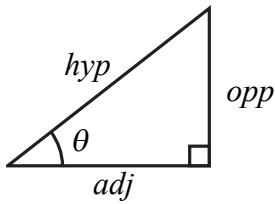
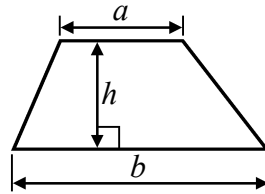
IGCSE MATHEMATICS 4400

FORMULA SHEET – FOUNDATION TIER

Pythagoras' Theorem
 $a^2 + b^2 = c^2$



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



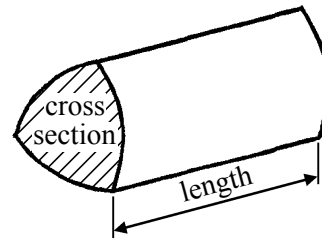
adj = hyp \times cos θ
 opp = hyp \times sin θ
 opp = adj \times tan θ

Volume of prism = area of cross section \times length

or $\sin \theta = \frac{\text{opp}}{\text{hyp}}$

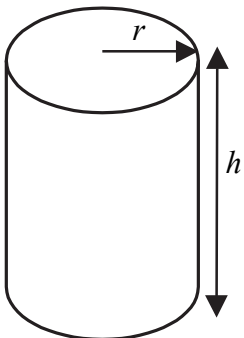
$\cos \theta = \frac{\text{adj}}{\text{hyp}}$

$\tan \theta = \frac{\text{opp}}{\text{adj}}$



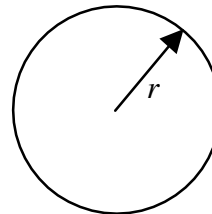
Circumference of circle = $2\pi r$

Area of circle = πr^2



Volume of cylinder = $\pi r^2 h$

Curved surface area of cylinder = $2\pi r h$

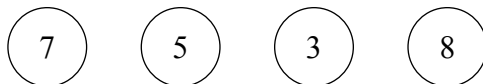


Answer ALL EIGHTEEN questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1. The diagram shows four discs with numbers on.



(a) Using **all** these four discs only,

(i) write down the largest number you can make,

.....

(ii) write down the smallest **odd** number you can make.

.....

(2)

(b) Which numbers on the discs are factors of 42?

.....

(2)

(c) Which number on the discs is a factor of **both** 15 **and** 40?

.....

(1)

(Total 5 marks)

Q1

2. (a) (i) Write 57 463 correct to the nearest 1000.

.....

(ii) Write 23 596 correct to the nearest 100.

.....

(2)

(b) What is the value of the 5 in the number 5348?

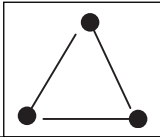
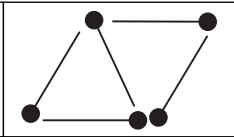
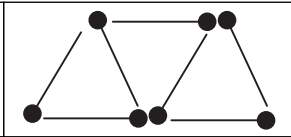
.....

(1)

(Total 3 marks)

Q2

3. Here are some diagrams made from matchsticks.

				
Diagram number	1	2	3	4
Number of matchsticks	3	5	7	

(a) (i) Draw diagram number 4 in the table.

(ii) How many matchsticks are used in diagram number 4?

.....

(2)

(b) How many matchsticks will be used in diagram number 5?

.....

(1)

(c) How many matchsticks will be used in diagram number 20?

.....

(2)

(Total 5 marks)

Q3

4. There are 12 numbered cards in a bag.

- | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 2 | 3 | 3 | 3 | 3 | 5 | 5 | 5 | 7 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|---|

Ming takes a card at random.

(a)

Certain	Likely	Unlikely	Impossible
---------	--------	----------	------------

Write down the word from the box that describes the probability that

(i) Ming takes a 9

.....

(ii) Ming takes a 4

.....

(2)

(b) Find the probability that

(i) Ming takes a 5

.....

(ii) Ming takes a card that is **not** a 5

.....

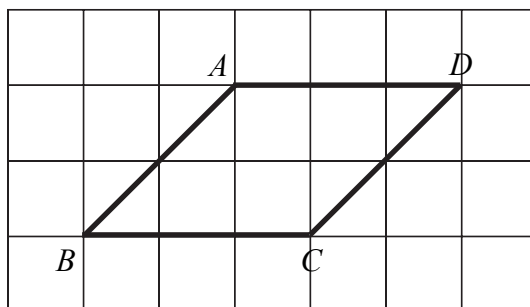
(3)

(Total 5 marks)

Q4

--

5. The diagram shows a quadrilateral $ABCD$ drawn on a 1 cm grid.



(a) What is the mathematical name for this quadrilateral?

.....
(1)

(b) Measure the length of AB .

..... cm
(1)

(c) Work out the perimeter of the quadrilateral $ABCD$.

..... cm
(2)

(d) On the diagram, mark an obtuse angle.
Label your angle X .

(1)

(e) Work out the area of the quadrilateral $ABCD$.
Give the units of your answer.

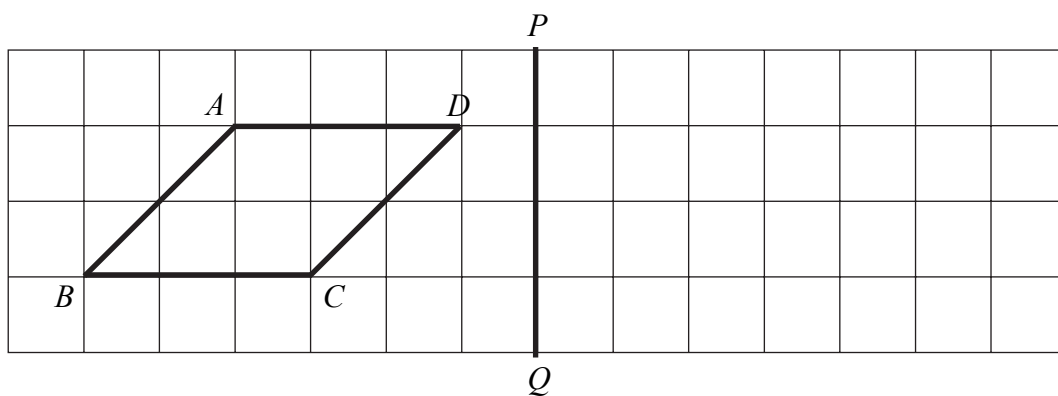
.....
(3)

(f) State the order of rotational symmetry of quadrilateral $ABCD$.

.....
(1)

(g) How many lines of symmetry does quadrilateral $ABCD$ have?

.....
(1)



(h) On the above diagram, reflect quadrilateral $ABCD$ in the line PQ .

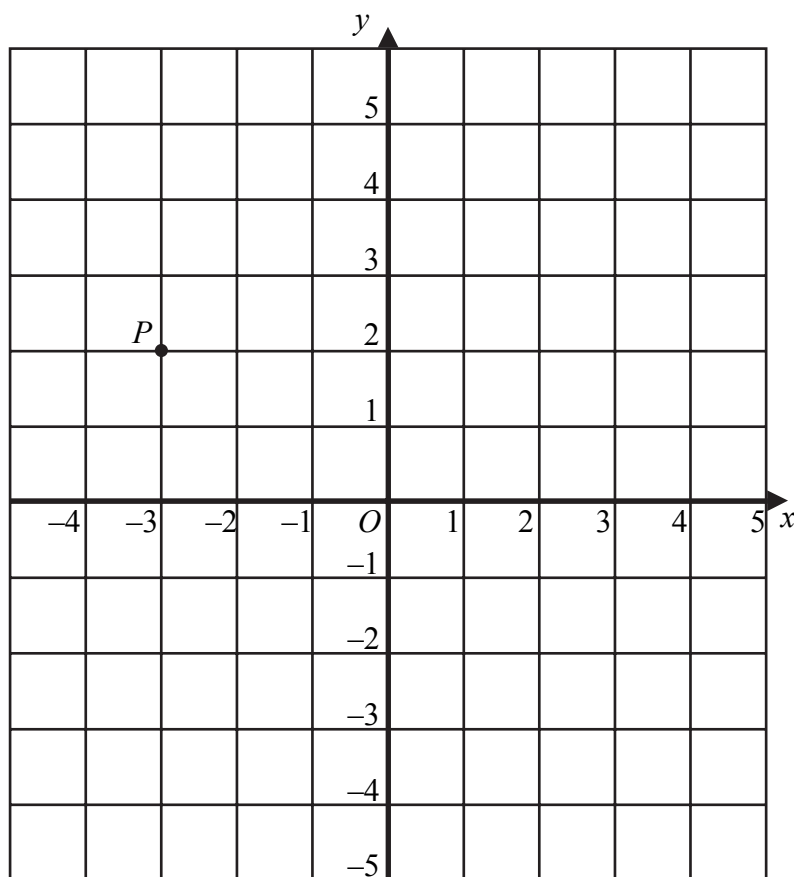
(2)

Q5

(Total 12 marks)

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6.



(a) (i) Write down the coordinates of the point P .

(.....,

(ii) On the grid, mark with a cross the point with coordinates $(4, -2)$.

(2)

(b) (i) Complete the table for $y = 2x + 1$

x	-3	-2	-1	0	1	2
y		-3				5

(ii) On the grid, draw the graph of $y = 2x + 1$

(4)

(Total 6 marks)

Q6

7. Mahmoud goes abroad for a holiday.

(a) At the airport a bottle of cola costs \$2.25
 Mahmoud has \$15 to spend on cola.
 He buys as many bottles as he can.

(i) How many bottles does he buy?

.....

(ii) How much change should he get?

\$

(4)

(b) His flight takes off at 2230 and lands at 0445
 How long is the flight in hours and minutes?

..... hours minutes

(3)

(c) The floors in his hotel are numbered as 7, 6, 5,, -3
 The top floor is number 7.
 The ground floor is number 0.
 The lowest floor below the ground floor is number -3.

(i) Mahmoud starts from the gym, on floor number -3.
 He goes to his room on floor 5.
 How many floors does he go up?

.....

(ii) Later Mahmoud starts at floor 5.
 He goes down 6 floors to the restaurant.
 On which floor is the restaurant?

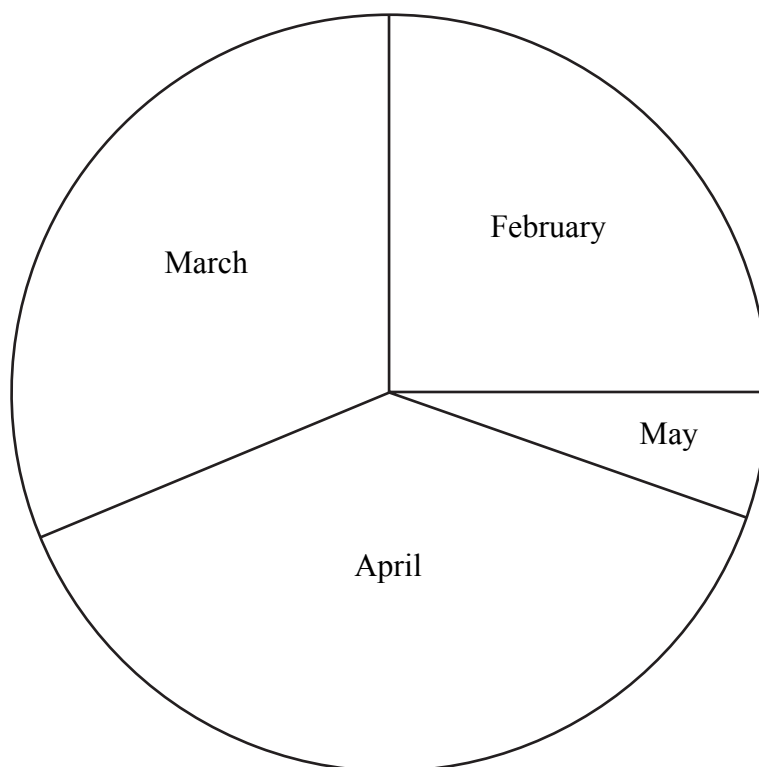
.....

(4)

Q7

(Total 11 marks)

8. The pie chart shows information about the monthly profits made by a firm.



(a) In which month was the profit greatest?

.....
(1)

The total of the profits for the four months was £72 000.

(b) Work out the profit for February.

£
(2)

(c) (i) Measure the angle for April.

..... °

(ii) Calculate the profit for April.

£
(3)

(Total 6 marks)

Q8

9. Calculate the value of x .

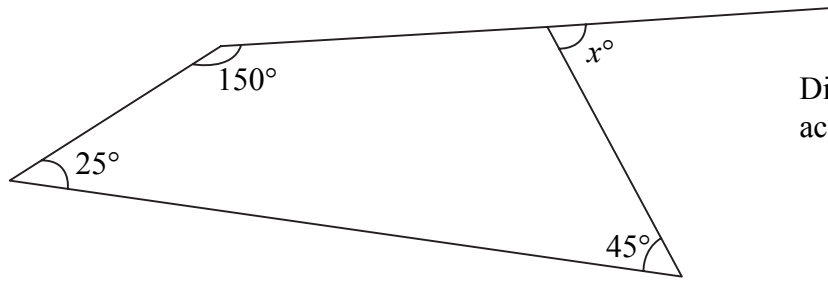


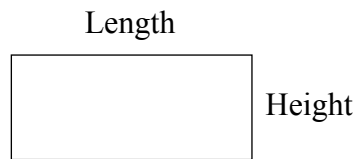
Diagram **NOT** accurately drawn

$x = \dots\dots\dots$

(Total 3 marks)

Q9

10. The length and the height of a rectangle are whole numbers of centimetres.



The area of the rectangle is 24 cm^2 .

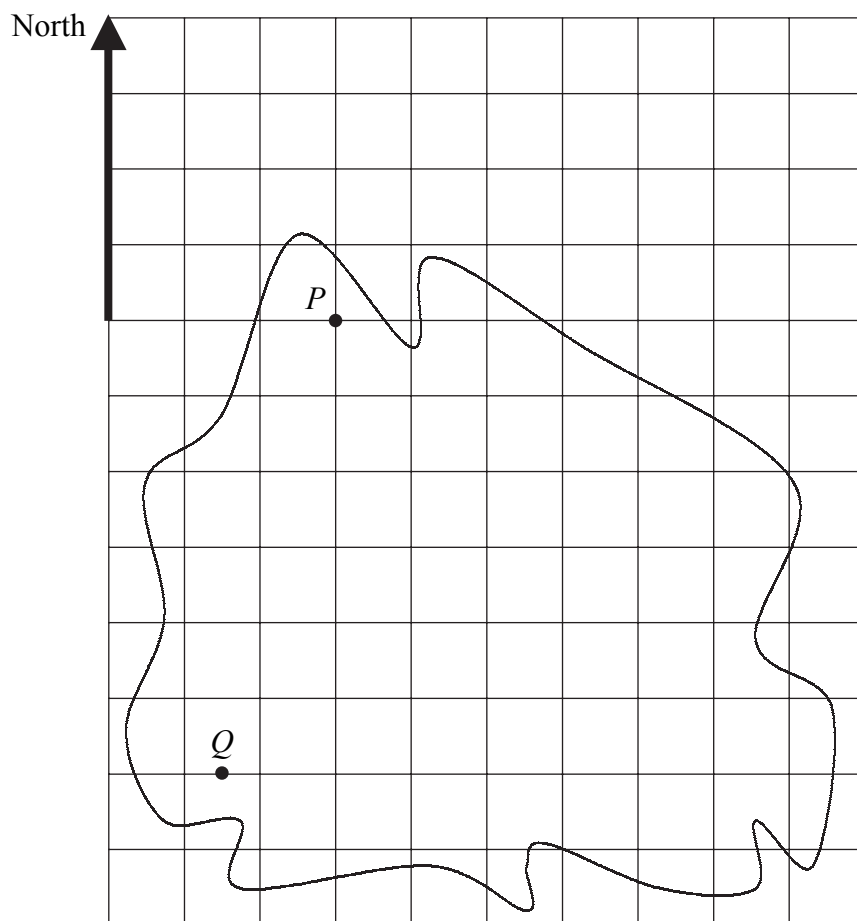
Complete the table to show all the possible pairs of values for the length and the height.

Length (cm)	6	4						
Height (cm)	4	6						

(Total 3 marks)

Q10

11. The diagram shows a map of an island.
Two towns, P and Q , are shown on the map.



- (a) Find the bearing of Q from P .

.....
°

(2)

The scale of the map is 1 cm to 5 km.

- (b) Find the real distance between P and Q .

..... km

(2)

Another town, R , is due East of Q .
The bearing of R from P is 135° .

- (c) On the map, mark and label R .

(2)

(Total 6 marks)

Q11

12. The table shows the first three terms of a sequence.

Term number	1	2	3		
Term	2	5	10		

The rule for this sequence is

$$\text{Term} = (\text{Term number})^2 + 1$$

(a) Work out the next two terms of this sequence.

.....,
(2)

(b) One term of this sequence is 101.
Find the term number of this term.

.....
(2)

(Total 4 marks)

Q12

13. (a) Nikos drinks $\frac{2}{3}$ of a litre of orange juice each day.
How many litres does Nikos drink in 5 days?
Give your answer as a mixed number.

.....
(2)

(b) (i) Find the lowest common multiple of 4 and 6.

.....

(ii) Work out $3\frac{3}{4} + 2\frac{5}{6}$.
Give your answer as a mixed number.
You must show all your working.

.....
(3)

(Total 5 marks)

Q13

14. Toni buys a car for £2500 and sells it for £2775.
Calculate her percentage profit.

.....%

(Total 3 marks)

Q14

15. A straight road rises 60 m in a horizontal distance of 260 m.

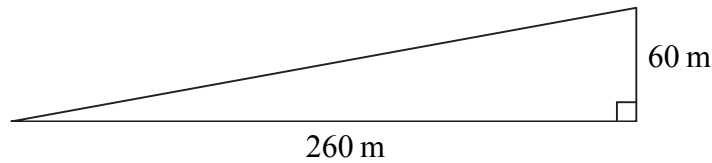


Diagram **NOT** accurately drawn

(a) (i) Work out the gradient of the road.
Give your answer as a fraction in its lowest terms.

.....

(ii) Convert your answer to (i) to a percentage.
Give your answer to the nearest whole number.

.....%
(4)

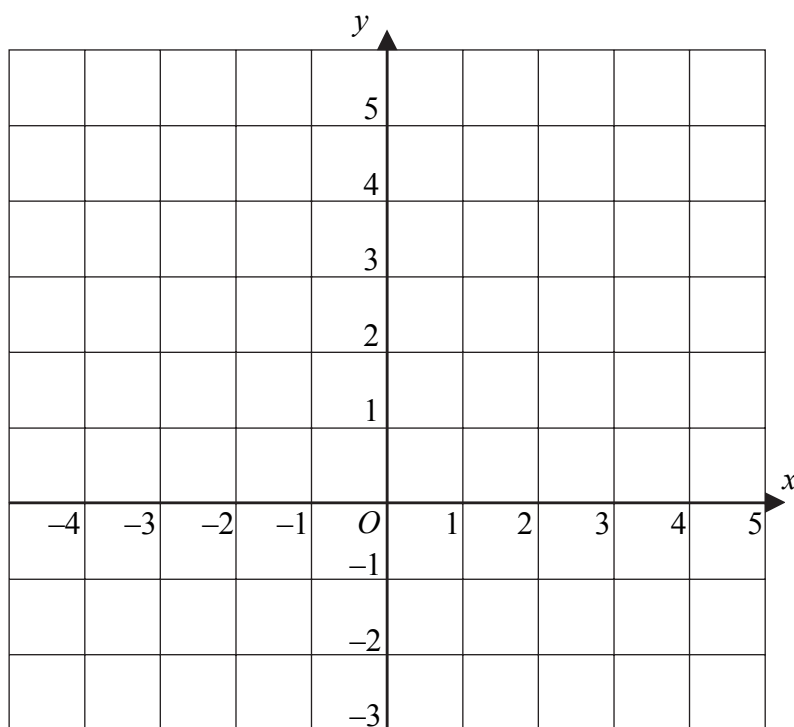
(b) Calculate how far the road rises in a horizontal distance of 195 m.

..... m
(2)

(Total 6 marks)

Q15

16.



(a) On the grid, draw the line $x + y = 4$.

(1)

(b) On the grid, show clearly the region defined by the inequalities

$$x + y \geq 4$$

$$x \leq 3$$

$$y < 4$$

(4)

(Total 5 marks)

Q16

17. The diagram shows a circle, centre O .
 PT is the tangent to the circle at T .
 $PO = 6$ cm.
 Angle $OPT = 40^\circ$.

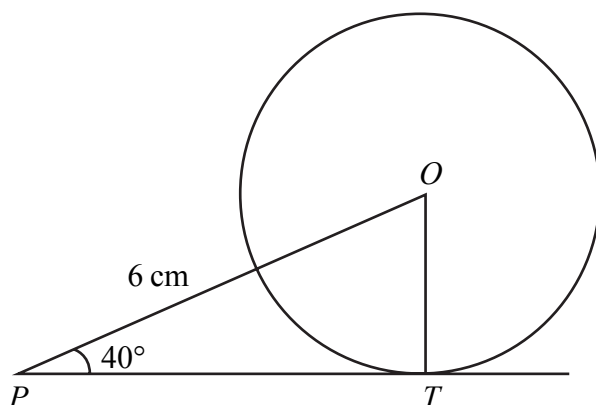


Diagram **NOT** accurately drawn

- (a) Explain why angle $OTP = 90^\circ$.

.....

(1)

- (b) Calculate the length of OT .
 Give your answer correct to 3 significant figures.

..... cm
 (3)

(Total 4 marks)

Q17

18. The table shows information about the ages of 24 students.

Age (years)	Number of students
16	9
17	3
18	8
19	4

(a) (i) Write down the mode of these ages.

..... years

(ii) Find the median of these ages.

..... years

(iii) Calculate the mean of these ages.

..... years
(6)

Another student, aged 18, joins the group.

(b) (i) Without calculating the new mean, state whether the mean will increase or decrease or stay the same.

.....

(ii) Give a reason for your answer to (i).

.....
.....
.....

(2)

(Total 8 marks)

Q18

TOTAL FOR PAPER: 100 MARKS

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