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

Paper Reference(s)

4400/2F

Examiner's use only

Team Leader's use only

London Examinations IGCSE

Mathematics

Paper 2F

Foundation Tier

Friday 13 May 2005 – Morning

Time: 2 hours

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3	
4	
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7	
8	
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11	
12	
13	
14	
15	
Total	

Materials required for examination
Ruler graduated in centimetres and millimetres, protractor, 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 16 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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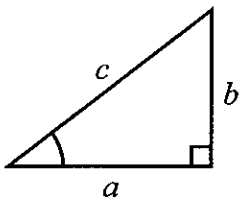
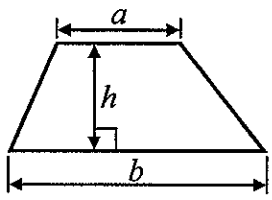
IGCSE MATHEMATICS 4400

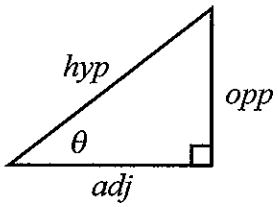
FORMULA SHEET – FOUNDATION TIER

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



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





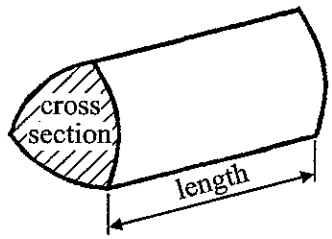
adj = hyp × cos θ
opp = hyp × sin θ
opp = adj × tan θ

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

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

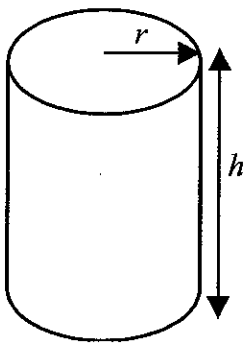
$\tan\theta = \frac{\text{opp}}{\text{adj}}$

Volume of prism = area of cross section × length



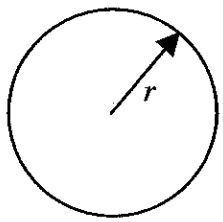
Circumference of circle = $2\pi r$

Area of circle = πr^2



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

Curved surface area of cylinder = $2\pi rh$



N 2 2 1 2 4 A 0 2 1 6

Leave blank

Answer ALL EIGHTEEN questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1. (a) Write these numbers in order of size.
Start with the smallest.

1002 909 916 1010 99

.....

(1)

(b) Which of these numbers is the highest?

3 –2 6 –8 1

.....

(1)

(c) Which of these numbers are multiples of 4?

6 8 10 14 26 28

.....

(2)

(d) Write down all the factors of 21.

.....

(2)

(e) Which of these numbers are prime numbers?

21 25 29 33 35 37

.....

(2) **Q1**

(Total 8 marks)

Leave blank

2.

Certain	Likely	Unlikely	Impossible

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

(i) four people, chosen at random, have birthdays in the same week,

.....

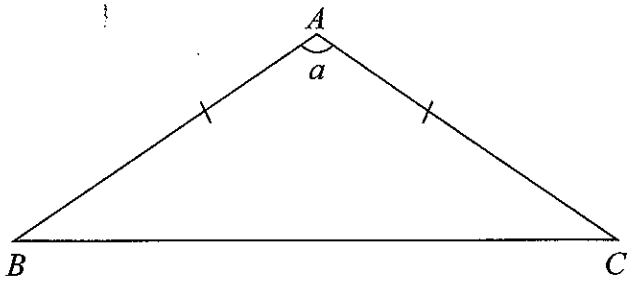
(ii) a baby will be born in Africa tomorrow.

.....

(Total 2 marks)

Q2

3. The diagram shows a triangle *ABC*.



(a) Measure the length of *BC*.

..... cm

(1)

(b) Measure the size of angle *a*.

°

.....

(1)

(c) $AB = AC$

(i) What type of triangle is *ABC*?

.....

(ii) What does this mean about angles *B* and *C*?

.....

(2)

(d) On the diagram, draw the line of symmetry of the triangle.

(2)

Q3

(Total 6 marks)

Leave blank

4. Here are nine scores.

3 6 7 1 2 9 7 3 7

(a) Find the mode.

.....

(1)

(b) Find the median.

.....

(2)

(c) Work out the range.

.....

(1)

(d) Work out the mean.

.....

(2)

(e) One of the nine scores is chosen at random.
Find the probability that it is a 2.

.....

(1)

Q4

(Total 7 marks)

Leave blank

5. There are 450 workers in a factory.

$\frac{3}{5}$ of these workers are men. The rest of the workers are women.

(a) How many of the workers are men?

.....

(2)

(b) (i) What fraction of the workers are women?

.....

(ii) Give your answer to (i) as a percentage.

.....%

(4)

(c) Ahmed's pay was £9000
His pay increased by 3%
Work out his pay increase.

£.....

(2)

(d) The night shift starts at 2230 and finishes at 0815
Work out the length of the night shift.
Give your answer in hours and minutes.

..... hours ..... minutes

(3)

Q5

(Total 11 marks)

Leave blank

6. (a) Here is a sequence of numbers.

4, 9, 14, 19, 24, ...

(i) Write down the next two numbers in the sequence.

..... , ...

(ii) Write down the rule for working out the numbers in the sequence.

.....

(3)

(b) Here is another sequence.

2, 7, 14, 23, 34, ...

(i) Write down the next two numbers in this sequence.

..... , ...

(ii) Write down the rule for working out the numbers in this sequence.

.....

.....

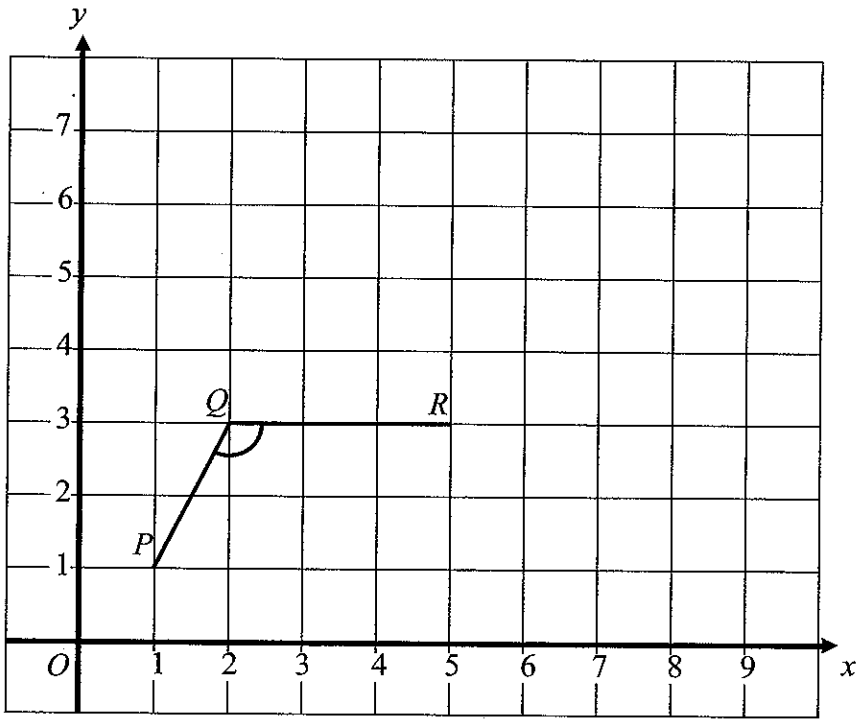
(3)

Q6

(Total 6 marks)

Leave blank

7. The diagram shows three points, P, Q and R, plotted on a 1cm grid.



(a) Write down the coordinates of Q.

(..... , ...)

(1)

(b) S is the point (6, 1).

(i) Draw the quadrilateral $PQRS$.

(ii) What is the special name for angle Q?

.....

(iii) Work out the area of $PQRS$.

..... cm^2

(4)

(c) On the grid, mark the point T so that $PQRT$ is a parallelogram.

(1)

(d) On the grid, draw the line $y = 5$

(1)

Q7

(Total 7 marks)

Leave blank

8. 1 4 5 6 7 9

A white card and a grey card are chosen at random.
The numbers on these two cards are added together.

(a) Complete the table to show all the possible totals.

		Grey card		
	+	6	7	9
White card	1			
	4			
	5			

(2)

(b) Find the probability that the total is 10.

.....

(2)

(Total 4 marks)

Q8

9. (a) Solve $\frac{x}{3} = 7$

$x =$ .....

(1)

(b) Solve $8 - y = 3$

$y =$ .....

(1)

(c) Solve $3p + 5 = 7p + 3$

$p =$ .....

(3)

(Total 5 marks)

Q9

Leave blank

10. The exchange rate between dollars and euros is \$1 = €1.12

(a) Marie changes \$300 into euros.
How much does she receive in euros?

€ .....
(2)

(b) Aysha changes €400 into dollars.
How much does she receive in dollars?
Give your answer correct to 2 decimal places.

\$.....
(3)

Q10

(Total 5 marks)

11. Krishnan used 611 units of electricity.
The first 182 units cost £0.0821 per unit.
The remaining units cost £0.0704 per unit.
Tax is added at 5% of the total amount.

Complete Krishnan's bill.

182 units at £0.0821 per unit	£.....
..... units at £0.0704 per unit	£.....
Total amount	£_____
Tax at 5% of the total amount	£.....
Amount to pay	£_____

Q11

(Total 7 marks)

Leave blank

12. In the diagram, PQR and PST are straight lines.
QS and RT are parallel lines.
Angle $QRT = 70°$.
Angle $QST = 120°$.

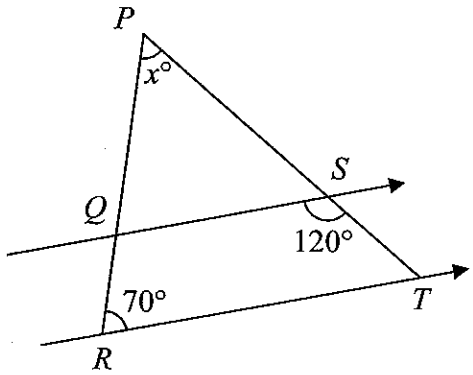


Diagram **NOT** accurately drawn

(a) Work out the value of x.

$x =$ .....
(3)

(b) Give a reason for each step in your working.

.....

.....

.....
(2)

(Total 5 marks)

Q12

Leave blank

13. (a) Simplify

(i) $p \times p \times p \times p$

.....

(ii) $2a + 3b - 5a + b - 7$

.....

(iii) $\dfrac{q^3 \times q^5}{q^2}$

.....

(4)

(b) Multiply out $x(2x + 3)$

.....

(2)

(c) Multiply out and simplify $(y - 1)(y + 2)$

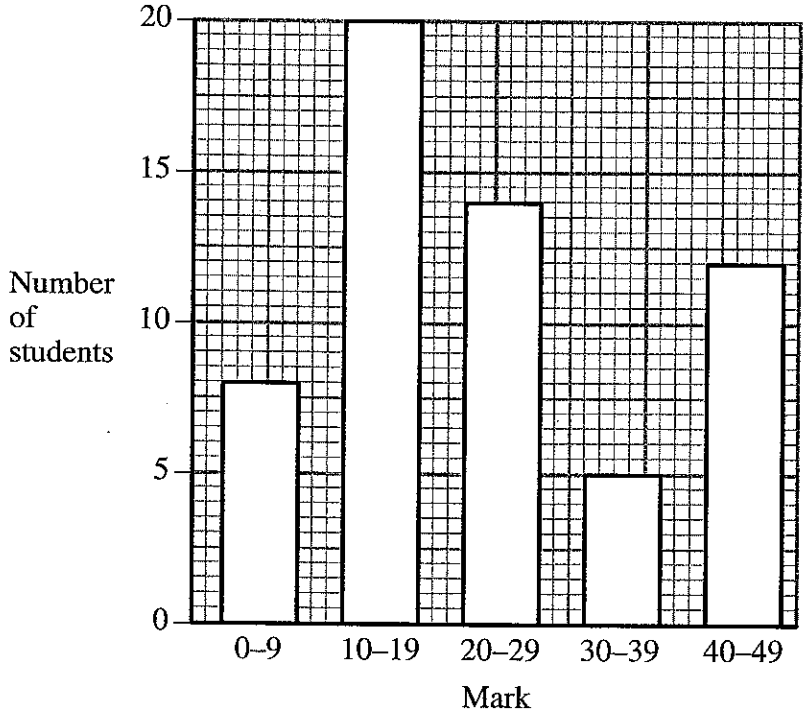
.....

(2) **Q13**

(Total 8 marks)

Leave blank

14. The frequency diagram gives information about the marks gained by a group of 59 students in a test.



(a) Which is the modal class?

.....

(1)

A student is chosen at random from the whole group.

(b) Find the probability that this student's mark is less than 30.

.....

(2)

(c) Calculate an estimate of the total number of marks scored by all the students in the group.

.....

(3)

Q14

(Total 6 marks)

Leave blank

15. In a club, $\frac{1}{2}$ of the members are left-handed and $\frac{1}{4}$ of the members wear glasses.
A member is chosen at random.

Stavros says "The probability that this member is left-handed **or** wears glasses is $\frac{3}{4}$"

Is he correct?

.....

Explain your answer.

.....

.....

Q15

(Total 2 marks)

16. The diagram shows a triangle LMN.
$MN = 15$ cm. $LN = 8$ cm.
Angle $LNM = 90°$.

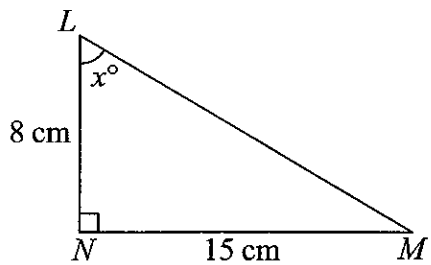


Diagram **NOT** accurately drawn

(a) Calculate the length of ML.

..... cm

(3)

(b) Write down the value of $\tan x°$.

.....

(1)

Q16

(Total 4 marks)

Leave blank

17. (a) The universal set, $\mathscr{E}$ = {Angela's furniture}.
A = {Chairs}.
B = {Kitchen furniture}.

Describe fully the set $A \cap B$.

.....

.....

(2)

(b) P = {2, 4, 6, 8}.
Q = {Odd numbers less than 10}

(i) List the members of the set $P \cup Q$.

.....

(ii) Is it true that $P \cap Q = \varnothing$?

.....

Explain your answer.

.....

.....

(3) **Q17**

(Total 5 marks)

18. The formula for the curved surface area, A, of a cylinder is

$$A = 2\pi rh$$

where r is the radius and h is the height.

Calculate the value of r when $A = 19.8$ and $h = 2.1$
Give your answer correct to one decimal place.

A = ... **Q18**

(Total 2 marks)

TOTAL FOR PAPER: 100 MARKS

END

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