London Examinations IGCSE

Mathematics

Paper 1F

Foundation Tier

Monday 18 May 2009 – Afternoon

Time: 2 hours

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, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
Without sufficient working, correct answers may be awarded no marks.
You must NOT write on the formulae page. Anything you write on the formulae page will gain NO credit.
If you need more space to complete your answer to any question, use additional answer sheets.

Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
There are 22 questions in this question paper. The total mark for this paper is 100.
There are 20 pages in this question paper. Any blank pages are indicated.
You may use a calculator.

Advice to Candidates

Write your answers neatly and in good English.

*Turn over*
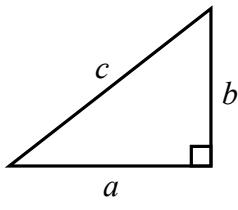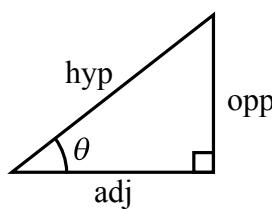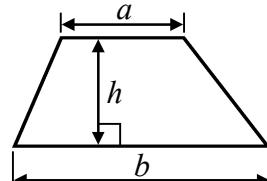
IGCSE MATHEMATICS 4400

FORMULA SHEET – FOUNDATION TIER

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

Area of a trapezium $= \frac{1}{2}(a + b)h$
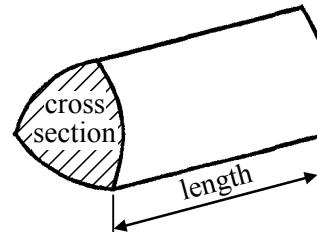
$adj = hyp \times \cos \theta$
$opp = hyp \times \sin \theta$
$opp = adj \times \tan \theta$
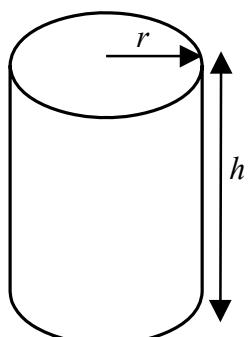
Volume of prism = area of cross section $\times$ length

or $\sin \theta = \dfrac{opp}{hyp}$

$\cos \theta = \dfrac{adj}{hyp}$

$\tan \theta = \dfrac{opp}{adj}$
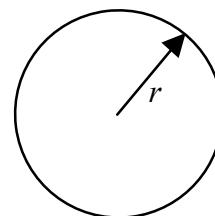
Circumference of circle $= 2\pi r$

Area of circle $= \pi r^2$

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

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

Answer ALL TWENTY TWO questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1. (a) Write the number **six thousand and twelve** in figures.

....
(1)

   (b) Write the number 6789 correct to the nearest hundred.

....
(1)

   (c) Write down the value of the 8 in the number 6789

....
(1)

   (d) Find the number which is exactly halfway between 742 and 864

....
(1) Q1

(Total 4 marks)

2. Here are the first five terms of a number sequence.

   9   18   27   36   45

   (a) Write down the next two terms of the sequence.

.... , ...
(2)

   (b) Explain how you worked out your answer.

....
(1)

   (c) Find the 20th term of the sequence.

....
(1) Q2
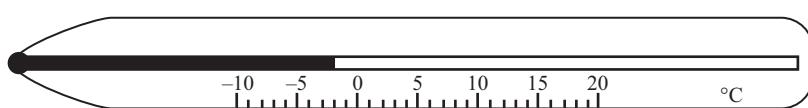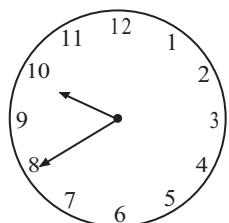
(Total 4 marks)

**3.** One **evening**, Jade recorded the time and the temperature.

(a) Write down the time using

    (i) the 12-hour clock,

....

    (ii) the 24-hour clock.

....
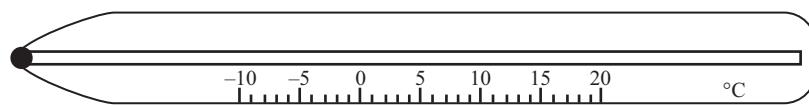
(2)

(b) Write down the temperature.

.... °C

(1)

Later in the night, the temperature was −8°C.

(c) Show −8°C on the thermometer below.

(1)
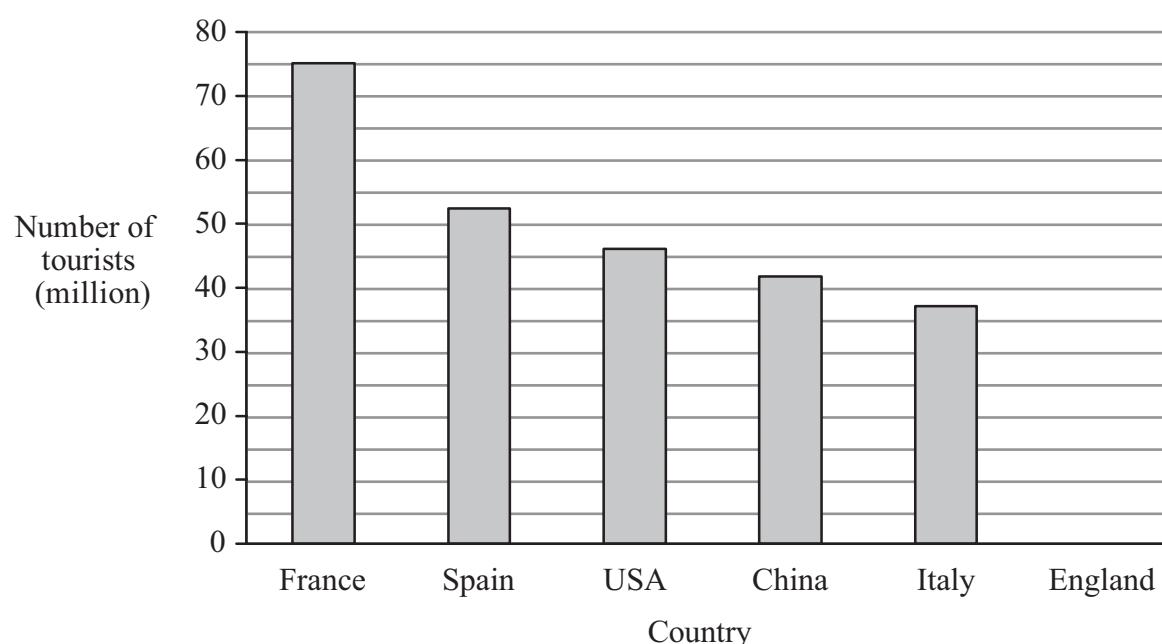
(Total 4 marks)

4. The bar chart shows information about the numbers of tourists, in millions, who visited five countries in 2004.

(a) Write down the number of tourists who visited France.

.... million

(1)

(b) Which country was visited by 46 million tourists?

....

(1)

In 2004, 28 million tourists visited England.

(c) Draw a bar on the bar chart to show this information.

(1)
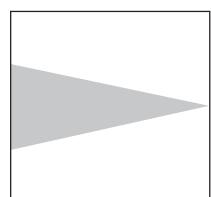
(Total 3 marks)
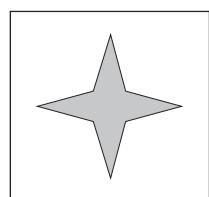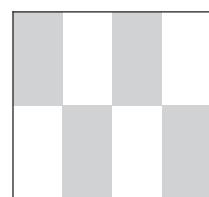
5. Here are 4 flags. Each flag is a square.
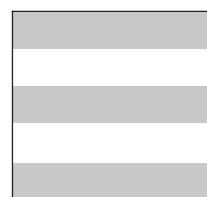
A	**B**	**C**	**D**

(a) (i) On flag A, draw the line of symmetry.

(ii) Write down the special name for the shaded triangle.

....

(2)

(b) On flag B, draw **all** its lines of symmetry.

(2)

(c) On flag B, the shaded shape is an 8-sided polygon.

(i) Write down the special name for an 8-sided polygon.

....

(ii) Explain why the shaded polygon is **not** a regular polygon.

....

(2)

(d) (i) How many lines of symmetry has flag C?

....

(ii) Write down the order of rotational symmetry of flag C.

....

(2)

(e) (i) What fraction of flag D is white?

....

(ii) Write your fraction as a decimal.

....

(2)

(Total 10 marks)

Q5

6.

22	23	24	25	26
27	28	29	30	

(a) From the numbers in the box, write down

(i) two numbers with a sum of 46

.... and ....

(ii) a multiple of 7

....

(iii) a square number,

....

(iv) a prime number.

....

(4)

(b) A number is taken at random from the numbers in the box.
Find the probability that it will be

(i) the number 22

....

(ii) an even number.

....

(3)

(Total 7 marks)

7. (a) (i) Find $\sqrt{7}$

Write down all the figures on your calculator display.

....

(ii) Write your answer to part (i) correct to 2 decimal places.

....

(2)

(b) (i) Find 0.29^2
Write down all the figures on your calculator display.

....

(ii) Write your answer to part (i) correct to 1 significant figure.

....

(2)

(c) Find the value of $1.5^3 + \dfrac{1}{2.5}$

....

(2)

(Total 6 marks)

Q7

8. Here is the number of points a driver scored in each of 10 motor races.

$\quad$ 10 $\quad$ 1 $\quad$ 10 $\quad$ 6 $\quad$ 10 $\quad$ 4 $\quad$ 10 $\quad$ 4 $\quad$ 5 $\quad$ 10

(a) Work out the median number of points.

....

(2)

(b) Work out the range of the number of points.

....

(2)

(Total 4 marks)

Q8

9. (a) Simplify $q + q + q + q$

....
(1)

(b) Simplify $n \times 5 \times p$

....
(1)

(c) Solve $6x = 42$

$x = $ ....
(1)

(d) Solve $8y - 1 = 5$

$y = $ ....
(2)   Q9

(Total 5 marks)

10. (a) Write these fractions in order of size.
Start with the smallest fraction.

$$\frac{2}{3} \qquad \frac{7}{10} \qquad \frac{13}{20} \qquad \frac{5}{8}$$

....
(2)

(b) Show that $\dfrac{3}{4} - \dfrac{5}{12} = \dfrac{1}{3}$

(2)   Q10

(Total 4 marks)

11.
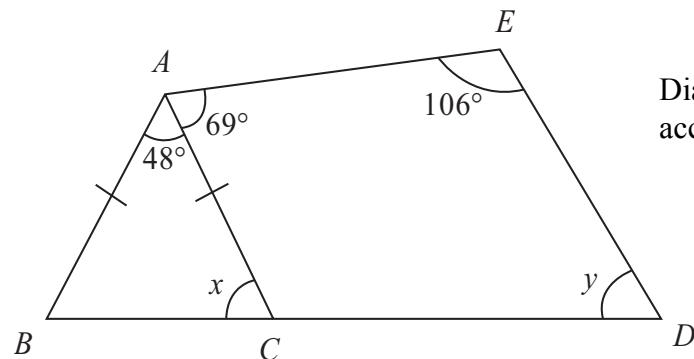
BCD is a straight line.
AB = *AC*

(a) Work out the size of angle *x*.

.....................°

(2)

(b) Work out the size of angle *y*.

.....................°

(3)

(Total 5 marks)

12. Last year in Mathstown High School, the ratio of the number of candidates for IGCSE mathematics to the number of candidates for IGCSE biology was 5 : 2
The number of candidates for IGCSE mathematics was 80

(a) Work out the number of candidates for IGCSE biology.

....

(2)

The 80 mathematics candidates were divided between Foundation and Higher in the ratio 1 : 3

(b) Work out the number of Foundation candidates.

....

(2)

Q12

(Total 4 marks)

13. Omar travelled from Nairobi to Mombasa by train.
The journey took 13 hours 15 minutes.
The average speed was 40 km/h.
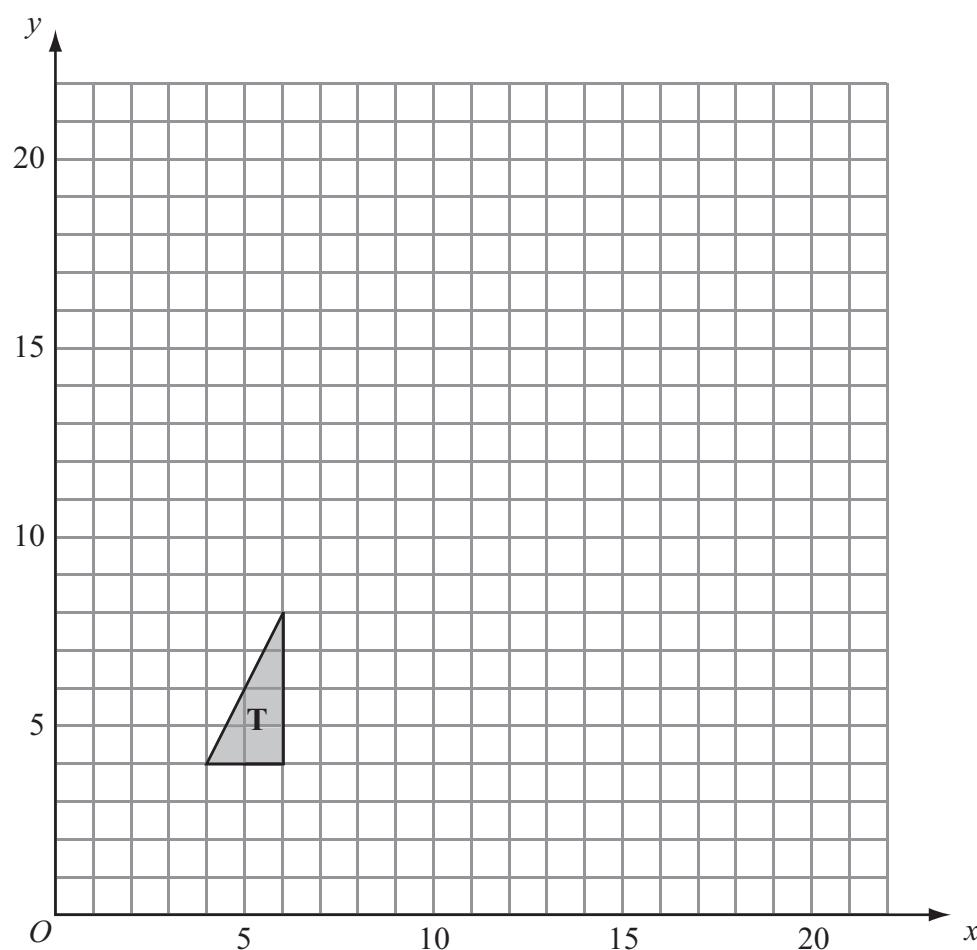
Work out the distance from Nairobi to Mombasa.

.... km

Q13

(Total 3 marks)

14.

On the grid, enlarge triangle **T** with a scale factor of $2\dfrac{1}{2}$ and centre (0, 0).
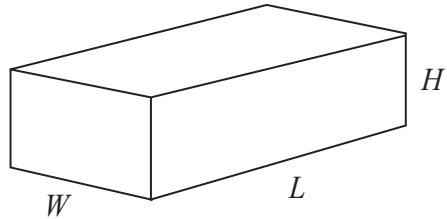
(Total 3 marks)

15. Here is a cuboid with length L, width W and height H.

The total surface area, A, of the cuboid is given by the formula

$$A = 2(LW + HW + HL)$$

(a) $L = 12$ $W = 7$ $H = 5$
Work out the value of A.

$A =$ ....

(2)

(b) $A = 70$ $W = 4$ $H = 2$
Work out the value of L.

$L =$ ....

(3)

(Total 5 marks)

Q15

16. Shilpa's weekly pay is $850
She spends 14% of the $850 on food.

(a) Work out 14% of $850

$ ....

(2)

Brett's weekly pay is $760
He spends $266 on rent.

(b) Express $266 as a percentage of $760

.... %

(2)

Kazia spends $204 a week on rent.
$204 is 30% of her weekly pay.

(c) Work out her weekly pay.

$ ....

(2)

Q16

(Total 6 marks)

17. A bag contains 10 coloured beads.
Ella is going to take at random a bead from the bag.
She says, "The probability that I will take a red bead is 0.35"

Explain why Ella is wrong.
You must show working to justify your answer.

....

....

....

(Total 2 marks)

18. (a) Factorise $p^2 + 7p$

....

(2)

(b) Solve $4 - 5x = 2$

$x = $ ....

(3)

(c) Simplify $t^3 \times t^6$

....

(1)

(d) Expand and simplify $3(4y + 5) - 5(2y + 3)$

....

(2)

(Total 8 marks)

19. The table shows information about the distances walked in a week by 40 people.

Distance (*d* km)	Frequency
$0 < d \leqslant 20$	8
$20 < d \leqslant 40$	24
$40 < d \leqslant 60$	5
$60 < d \leqslant 80$	2
$80 < d \leqslant 100$	1

Work out an estimate for the mean distance walked in a week by the 40 people.

.... km

(Total 4 marks)

Q19

20.

Diagram **NOT** accurately drawn

13 cm

13 cm

12 cm

15 cm
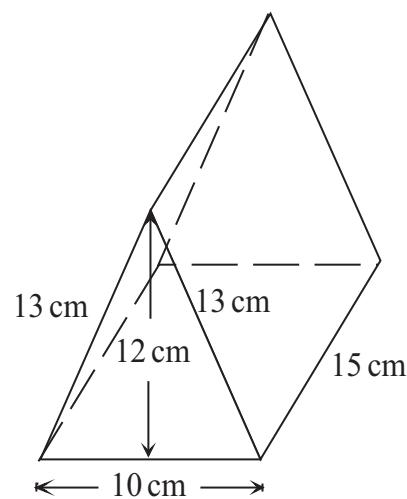
← 10 cm →

The diagram shows a prism.
The base of the prism is horizontal.
The cross-section of the prism is an isosceles triangle with sides of length 13 cm, 13 cm and 10 cm.
The vertical height of the triangle is 12 cm.
The length of the prism is 15 cm.

Work out the total surface area of the prism.

.... cm^2

21. $\mathscr{E}$ = {positive whole numbers}
A = {factors of 27}
B = {factors of 9}
C = {first four even numbers}

(a) List the members of $A \cup B$.

....

(2)

(b) (i) Is it true that $A \cap C = \emptyset$?

Tick (✓) the appropriate box.

Yes   No

☐   ☐

(ii) Explain your answer.

....

....

(1)   **Q21**

(Total 3 marks)

22.

7.9 cm

3.6 cm

$x°$
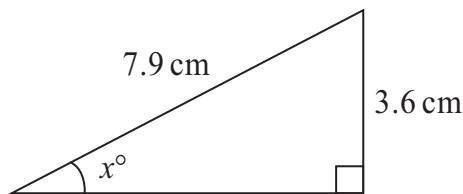
Diagram **NOT** accurately drawn

Work out the value of x.
Give your answer correct to 1 decimal place.

x = ... **Q22**

(Total 3 marks)

TOTAL FOR PAPER: 100 MARKS

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