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

Paper Reference(s)

4400/2F

London Examinations IGCSE

Mathematics

Paper 2F

Foundation Tier

Wednesday 8 November 2006 – Morning

Time: 2 hours

Examiner's use only

Team Leader's use only

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17	
18	
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, 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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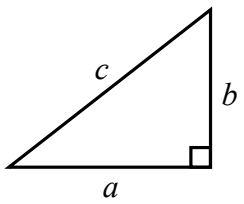
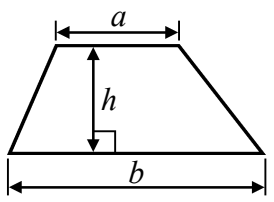
IGCSE MATHEMATICS 4400

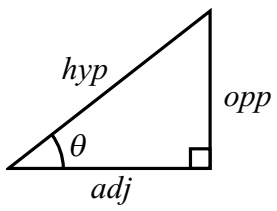
FORMULA SHEET – FOUNDATION TIER

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



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





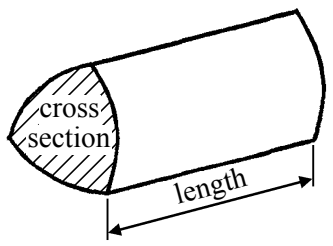
adj = hyp × cos θ
opp = hyp × sin θ
opp = adj × tan θ

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

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

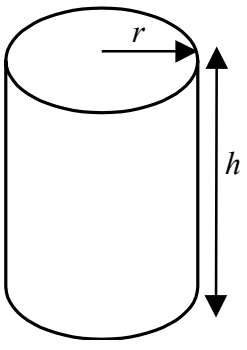
$\tan\theta = \frac{\text{opp}}{\text{adj}}$

Volume of prism = area of cross section × length



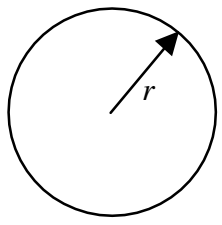
Circumference of circle = $2\pi r$

Area of circle = πr^2



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

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



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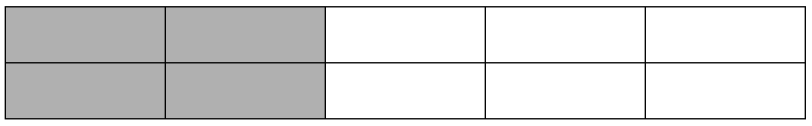
Answer ALL TWENTY-THREE questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1. (a)



What fraction of this shape is shaded?
Write your fraction in its simplest form.

.....

(2)

(b) Write your answer to part (a) as a percentage.

.....%

(1)

(c) Shade $\frac{1}{4}$ of this shape.

(1)

(d) Write $\frac{1}{4}$ as a decimal.

.....

(1)

Q1

(Total 5 marks)

Leave blank

2. The pictogram shows information about the populations of five cities.

Cairo	8
Karachi	7
Dhaka	6
Lagos	5½
Paris	5
Madrid	

represents 2 million people.

(a) Write down the population of Karachi.

..... million
(1)

(b) Write down the population of Cairo.

..... million
(1)

(c) Which city has a population of 11 million people?

.....
(1)

(d) The population of Madrid is 5 million people.

(i) Write the number 5 million in figures.

.....

(ii) Show the population of Madrid on the pictogram.

(2)

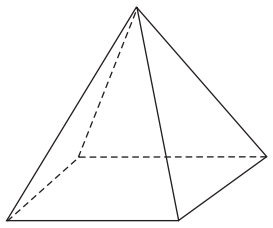
Q2

(Total 5 marks)

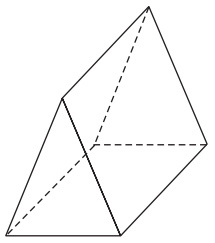
Leave blank

3. (a) Write down the mathematical name for each of these 3-D shapes.

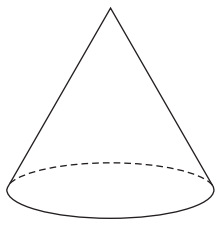
(i)



(ii)



(iii)



(i) ..... (ii) ..... (iii) .....

(3)

(b) (i) How many edges has shape (i)?

.....

(ii) How many vertices has shape (ii)?

.....

(2)

Q3

(Total 5 marks)

4. (a) (i) Write down the value of the 4 in the number 6743

.....

(ii) Write the number 6743 correct to the nearest hundred.

.....

(2)

(b) (i) Write down the value of the 3 in the number 7.368

.....

(ii) Write the number 7.368 correct to 2 decimal places.

.....

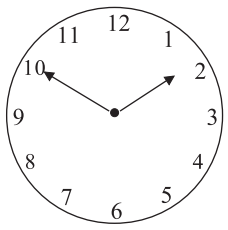
(2)

Q4

(Total 4 marks)

Leave blank

5. (a) One **afternoon**, Harry went for a cycle ride.
The clock shows the time at which he left home.



Write down this time using

(i) the 12-hour clock,

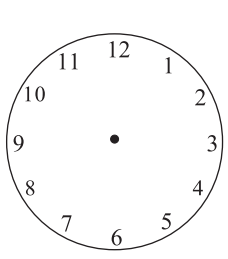
.....

(ii) the 24-hour clock.

.....

(2)

(b) He got home at twenty-five to four.
On the clock face, draw hands to show twenty-five to four.



(1) **Q5**

(Total 3 marks)

Leave blank

6. Here is a pattern of shapes made from centimetre squares.

Shape number 1 | Shape number 2 | Shape number 3

(a) In the space below, draw Shape number 4

(1)

This rule can be used to find the perimeter of a shape in this pattern.

Add 1 to the Shape number and then multiply your answer by 2

(b) Work out the perimeter of Shape number 9

..... cm

(2)

(c) Work out the Shape number of the shape with a perimeter of 30 cm.

Shape number = ...

(2)

(d) Explain why the perimeter is always an even number of centimetres.

.....

.....

(1)

(e) P cm is the perimeter of Shape number n.
Write down a formula for P in terms of n.

.....

(3) **Q6**

(Total 9 marks)

Leave blank

7. Amber made a journey in her car.
At the start of her journey, there were 35.4 litres of petrol in her car's petrol tank.
She drove 300 km.
Her car used 4.7 litres of petrol for every 100 km she drove.

Work out the amount of petrol in her car's petrol tank at the end of her journey.

..... litres **Q7**

(Total 3 marks)

8. (a) Write down the probability of an event which is certain to happen.

.....
(1)

(b) Write down the probability of an event which is impossible.

.....
(1)

The probability that the next baby born in the world will be a boy is 0.51

(c) Work out the probability that the next baby born in the world will be a girl.

.....
(1) **Q8**

(Total 3 marks)

Leave blank

9.

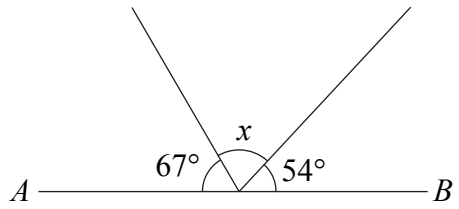


Diagram **NOT** accurately drawn

AB is a straight line.

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

.....
°

(ii) Give a reason for your answer.

.....

.....

(2)

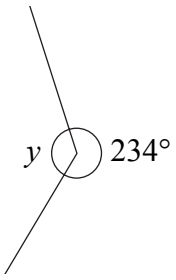


Diagram **NOT** accurately drawn

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

.....
°

(ii) What type of angle is angle *y*?

.....

(2)

Q9

(Total 4 marks)

Turn over

Leave blank

10. (a) Solve $3w = 21$

$w =$ .....

(1)

(b) Solve $x - 7 = 2$

$x =$ .....

(1)

(c) Solve $2y + 5 = 8$

$y =$ .....

(2) **Q10**

(Total 4 marks)

11. (a) Find the value of 3.9^2

.....

(1)

(b) Find $\sqrt{6.76}$

.....

(1)

(c) Find the cube root of 2744

.....

(1)

(d) Work out the value of $\dfrac{6.46}{1.8+1.6}$

.....

(2) **Q11**

(Total 5 marks)

Leave blank

12. The table gives information about the numbers of mobile phones owned by some families.

Number of mobile phones	Frequency
1	5
2	3
3	2
4	1

(a) Find the median number of mobile phones.

.....

(2)

(b) Work out the total number of mobile phones owned by these families.

.....

.....

(2) **Q12**

(Total 4 marks)

13.

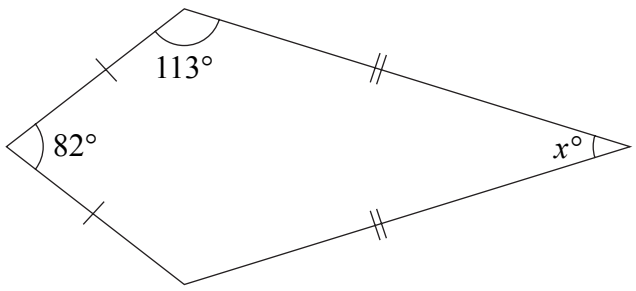


Diagram **NOT** accurately drawn

The diagram shows a kite.

Work out the value of x.

x = ...

Q13

(Total 3 marks)

Leave blank

14. Bridget flew from the UK to Dubai.
The exchange rate was £1 = 6.75 Dirham.
She changed £900 into Dirham.

(a) How many Dirham did she get?

..... Dirham
(2)

When she returned to the UK, she changed 459 Dirham back into pounds.
The exchange rate was still £1 = 6.75 Dirham.

(b) How many pounds did she get?

£ .....
(2)

Bridget's flight from the UK to Dubai covered a distance of 5456 km.
The flight time was 7 hours 45 minutes.

(c) Work out the average speed of the flight.

..... km/h
(3) **Q14**

(Total 7 marks)

Leave blank

15.

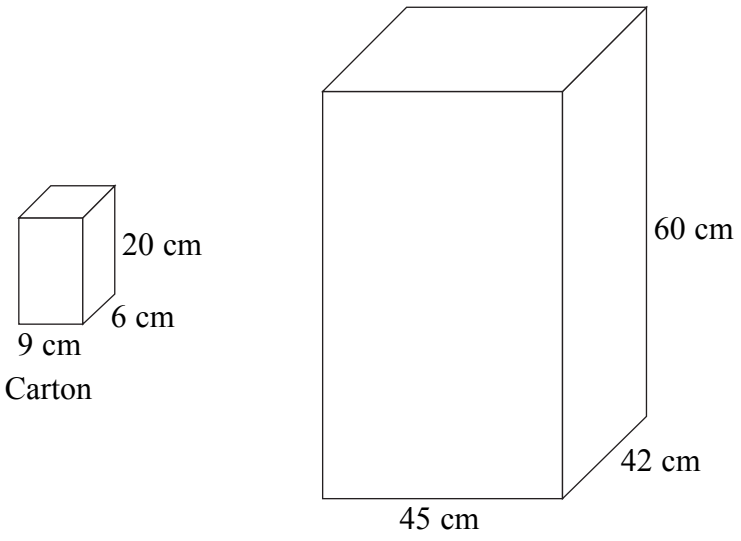


Diagram **NOT** accurately drawn

A carton measures 9 cm by 6 cm by 20 cm.
Cartons are packed into boxes.
A box measures 45 cm by 42 cm by 60 cm.

Work out the number of cartons needed to fill one box completely.

.....

(Total 3 marks)

Q15

Leave blank

16. Tamsin's age is 12 years and Uzma's age is 16 years.

(a) Work out the ratio of Tamsin's age to Uzma's age.
Give your answer in its simplest form.

.....

(2)

The total of Kim's age and Pablo's age is 45 years.
The ratio of Kim's age to Pablo's age is 1 : 4

(b) Work out Kim's age.

..... years

(2) **Q16**

(Total 4 marks)

17. (a) Simplify $5p - 2q + 3p - 4q$

.....

(2)

(b) Expand $3(2t + 5)$

.....

(1)

(c) Expand $y(y^2 - 3y)$

.....

(2)

(d) Expand and simplify $(x + 3)(x + 7)$

.....

(2) **Q17**

(Total 7 marks)

Leave blank

18. $\mathcal{E}$ = {**even** numbers less than 19}
M = {multiples of 3}
F = {factors of 12}

(a) (i) Explain why it is **not** true that $9 \in M$.

.....

(ii) List the members of M.

.....

(2)

(b) List the members of $M \cap F$.

.....

(2) **Q18**

(Total 4 marks)

19.

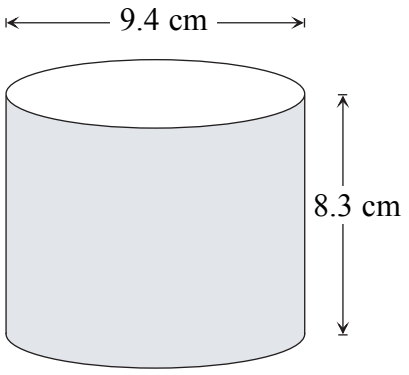


Diagram **NOT** accurately drawn

A solid cylinder has a diameter of 9.4 cm and a height of 8.3 cm.

Work out the volume of the cylinder.
Give your answer correct to 3 significant figures.

..... cm^3 **Q19**

(Total 3 marks)

Leave blank

20. There are 48 beads in a bag.
Some of the beads are red and the rest of the beads are blue.
Shan is going to take a bead at random from the bag.

The probability that she will take a red bead is $\frac{3}{8}$

(a) Work out the number of red beads in the bag.

.....

(2)

Shan adds some **red** beads to the 48 beads in the bag.

The probability that she will take a red bead is now $\frac{1}{2}$

(b) Work out the number of red beads she adds.

.....

(2)

(Total 4 marks)

Q20

21. Express 225 as the product of powers of its prime factors.

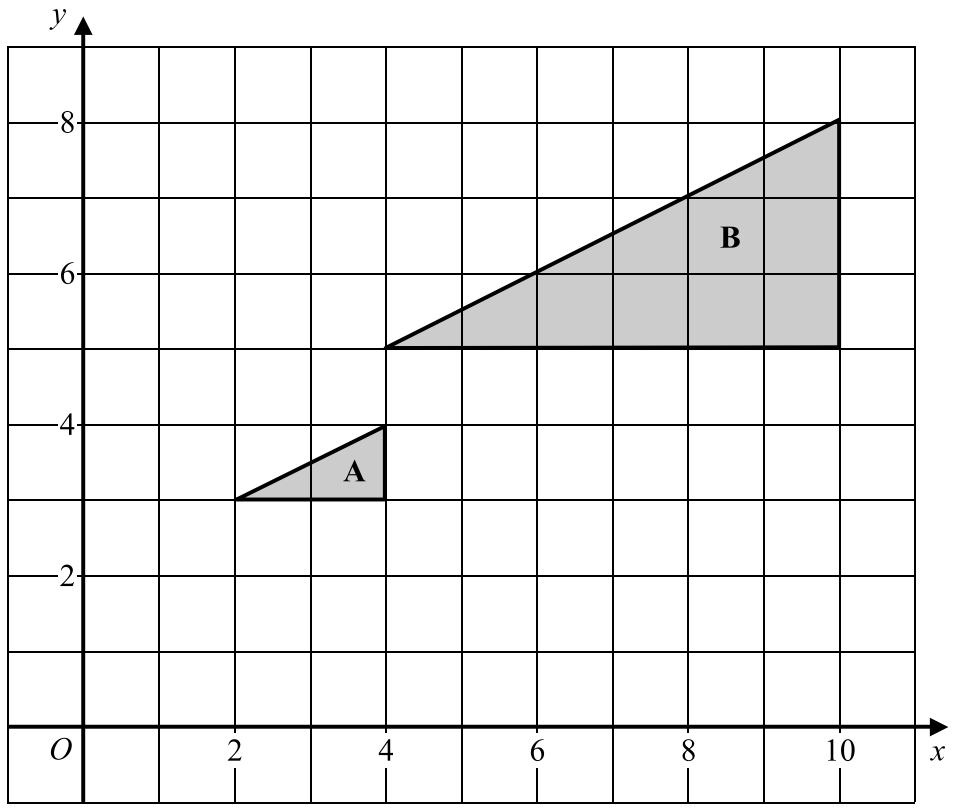
.....

(Total 3 marks)

Q21

Leave blank

22.



Describe fully the **single** transformation which maps triangle **A** onto triangle **B**.

.....

.....

(Total 3 marks)

Q22

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23.

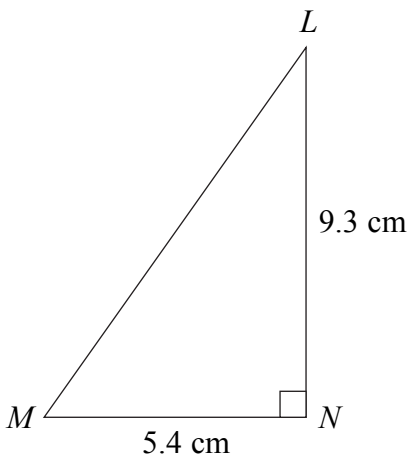

Diagram **NOT** accurately drawn

Triangle *LMN* is right-angled at *N*.
MN = 5.4 cm and *LN* = 9.3 cm.

(a) Work out the size of angle *LMN*.
Give your answer correct to 1 decimal place.

.....°

(3)

The length of *MN* is 5.4 cm, correct to 2 significant figures.

(b) (i) Write down the upper bound of the length of *MN*.

..... cm

(ii) Write down the lower bound of the length of *MN*.

..... cm

(2)

Q23

(Total 5 marks)

TOTAL FOR PAPER: 100 MARKS

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