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

Wednesday 7 November 2007 – 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, initial(s) 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.
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.

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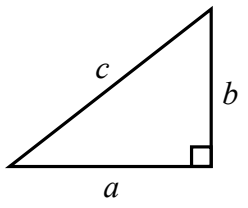
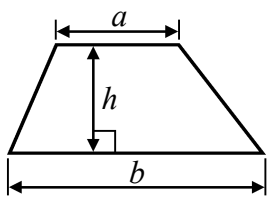
IGCSE MATHEMATICS 4400

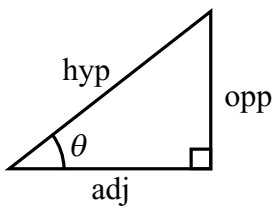
FORMULA SHEET – FOUNDATION TIER

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



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





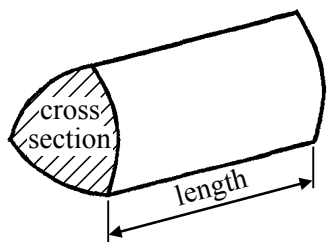
adj = hyp × cos θ
opp = hyp × sin θ
opp = adj × tan θ

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

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

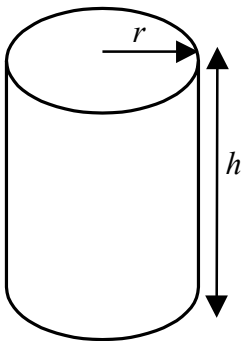
$\tan\theta = \frac{\text{opp}}{\text{adj}}$

Volume of prism = area of cross section × length



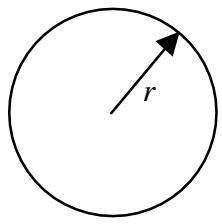
Circumference of circle = $2\pi r$

Area of circle = πr^2



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

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



Leave blank

Answer ALL TWENTY TWO questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1. The diameter of the planet Mercury is 4878 km.
The diameter of the planet Mars is 6794 km.

(a) Write the number 4878 in words.

.....

(1)

(b) Write down the value of the 7 in the number 6794

.....

(1)

(c) Write the number 4878 correct to the nearest thousand.

.....

(1)

On Mercury, the temperature is 350 °C during the day and –170 °C at night.

(d) Work out the difference in temperature between 350 °C and –170 °C.

..... °C

(1)

The mass of Mars is 11% of the mass of Earth.

(e) Write 11% as

(i) a fraction,

.....

(ii) a decimal.

.....

(2)

Q1

(Total 6 marks)

Leave blank

2. The pictogram shows information about the numbers of planes in the fleets of five airlines in 2004.

Virgin Atlantic	✈ ✈ ✈ ✈ ✈ ✈ ✈
Air India	✈ ✈ ✈ ✈ ✈ ▸
Royal Brunei Airlines	✈ ✈
Pakistan International Airways	✈ ✈ ✈ ✈ ✈ ✈ ▸
LOT Poland Airlines	✈ ✈ ✈ ✈ ✈ ✈ ✈ ✈ ▸

(a) Which of the airlines had the greatest number of planes in its fleet?

.....

(1)

Virgin Atlantic had 35 planes in its fleet.

(b) (i) How many planes does ✈ represent?

.....

(ii) Write down the number of planes in Royal Brunei Airlines' fleet.

.....

(iii) Find the number of planes in Air India's fleet.

.....

(3)

$\frac{3}{8}$ of Pakistan International Airways' fleet of 32 planes were Boeing 747s.

(c) Work out $\frac{3}{8}$ of 32

.....

(2)

Leave blank

14 out of Virgin Atlantic's fleet of 35 planes were Airbuses.

(d) Write 14 out of 35 as a fraction.
Give your fraction in its simplest form.

.....

(2)

The ratio of the number of planes in Air China's fleet to the number of planes in Malaysian Airlines' fleet was 6 : 7
There were 72 planes in Air China's fleet.

(e) Work out the number of planes in Malaysian Airlines' fleet.

.....

(2)

Q2

(Total 10 marks)

3. Complete the following sentences by writing a sensible metric unit on each of the dotted lines.

(i) The length of *AB* is 67 .....

A ——————————————— *B*

(ii) The weight of this examination paper is 55 .....

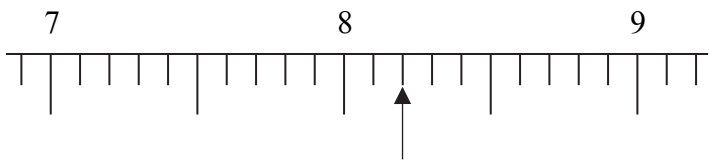
(iii) The height of the Eiffel Tower is 324 .....

Q3

(Total 3 marks)

Leave blank

4. (a)

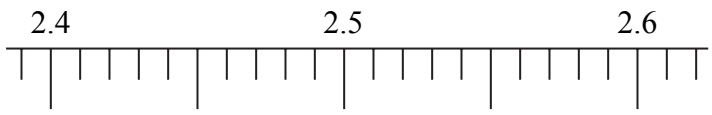


Write down the number marked with an arrow.

.....

(1)

(b)



(i) Mark with an arrow the number 2.48

(ii) Write down the value of the 8 in the number 2.48

.....

(iii) Round 2.48 to the nearest whole number.

.....

(3)

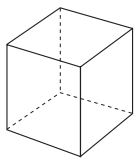
(c) Write down the number which is exactly halfway between 2.48 and 2.49

.....

(1) **Q4**

(Total 5 marks)

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

(i) 

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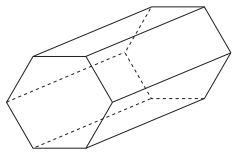
(ii) 

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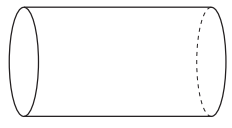
(iii) 

.....

(3)

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

.....

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

.....

(2) **Q5**

(Total 5 marks)

Leave blank

6. The first four terms of a number sequence are

2 4 8 16

(a) Write down the next term of the sequence.

.....

(1)

(b) Explain how you found your answer.

.....

(1)

(c) The 13th term of the sequence is 8192

Work out the 12th term of the sequence.

.....

(1)

(d) Explain why 513 cannot be a term of the sequence.

.....

(1) **Q6**

(Total 4 marks)

7. (a) Simplify $d + d$

.....

(1)

(b) Simplify $p \times q \times 6$

.....

(1)

(c) Simplify $7x + 5y - 4x - 7y$

.....

(2)

(d) Simplify $2n \times 3n$

.....

(1) **Q7**

(Total 5 marks)

Leave blank

8. Write these numbers in order of size.
Start with the lowest number.

(a) 205 52 25 502 250

.....

(1)

(b) –10 –7 –9 0 –12

.....

(1)

(c) 0.7 0.78 0.08 0.708 0.078

.....

(1)

(d) $\frac{2}{5}$ 30% 0.35 $\frac{1}{3}$

.....

(2)

Q8

(Total 5 marks)

9.

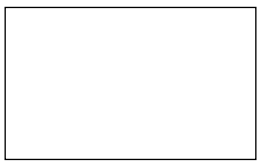


Diagram **NOT** accurately drawn

A basketball court is a rectangle 28 m long and 15 m wide.

(a) Work out the perimeter of the rectangle.

..... m

(2)

(b) Work out the area of the rectangle.

..... m^2

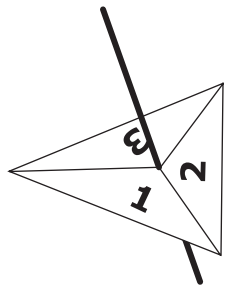
(2)

Q9

(Total 4 marks)

Leave blank

10. Here is a 3-sided spinner.



The sides of the spinner are labelled 1, 2 and 3

(a) Nathan spins the spinner once.

Write down the probability that the spinner will land on a 4

.....

(1)

(b) Daisy spins the spinner twice.
One possible outcome is (1, 2).
This means that the spinner lands on a 1 on the first spin and a 2 on the second spin.

List all the possible outcomes.

.....

.....

(2)

(c) The spinner is fair.
Daisy spins the spinner twice.

What is the probability that the two numbers it lands on are both odd?

.....

(2)

Q10

(Total 5 marks)

Leave blank

11.

£1 = 2.61 New Zealand dollars
£1 = 1.45 euros

(a) Change £300 to New Zealand dollars.

..... New Zealand dollars
(2)

(b) Change 812 euros to pounds (£).

£ .....
(2)

(c) Change 630 New Zealand dollars to euros.

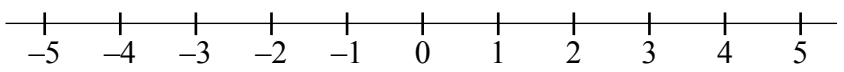
..... euros
(2) **Q11**

(Total 6 marks)

12. (a) Solve $4x - 1 = 2$

$x =$ .....
(2)

(b) On the number line, show the inequality $-2 < y \leqslant 3$



(2) **Q12**

(Total 4 marks)

Leave blank

13.

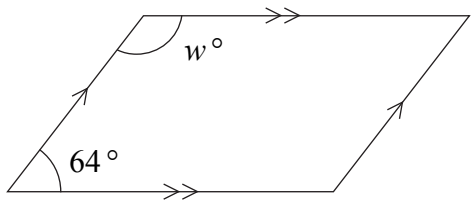


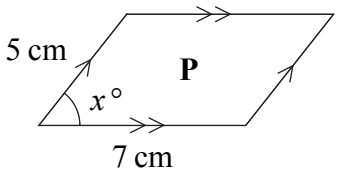
Diagram **NOT** accurately drawn

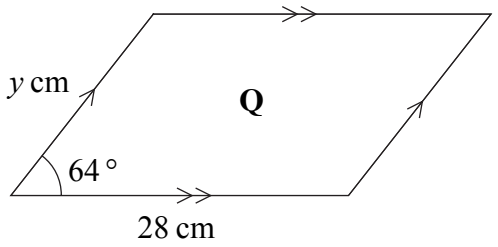
(a) The diagram shows a parallelogram.

Work out the value of w.

$w =$ .....

(3)





Diagrams **NOT** accurately drawn

Parallelogram **Q** is an enlargement of parallelogram **P**.

(b) Find the value of x.

$x =$ .....

(1)

(c) Work out the scale factor of the enlargement.

.....

(1)

(d) Work out the value of y.

$y =$ .....

(1)

Q13

(Total 6 marks)

Leave blank

14. There are four grades of egg.
The table shows how many eggs of each grade were laid by a hen last year.

Grade	Number of eggs
Extra large	55
Large	48
Medium	35
Small	12

(a) Jody uses the information in the table to draw a pie chart.

Work out the size of the angle for Medium eggs.

.....°

(2)

(b) In the first four months of this year, the hen laid 60 eggs.

Work out an estimate for the number of Extra large eggs the hen laid in these four months.

.....

(3)

(c) The table below shows how the grade of an egg is related to its weight.

Grade	Weight (w grams)
Extra large	$w \geqslant 73$
Large	$63 \leqslant w < 73$
Medium	$53 \leqslant w < 63$
Small	$w < 53$

Work out an estimate for the total weight of 48 Large eggs and 35 Medium eggs.

..... g

(3)

Leave blank

(d) Jody wants to use the information in the table to work out an estimate for the total weight of all the eggs laid by the hen last year.

Explain why it is difficult to do this.

.....

(1) **Q14**

(Total 9 marks)

15.

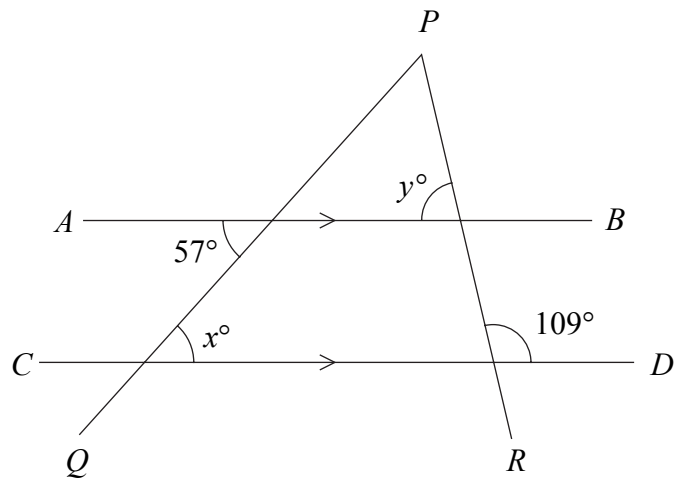


Diagram **NOT** accurately drawn

AB and *CD* are parallel straight lines.
PQ and *PR* are straight lines.

(a) (i) Find the value of *x*.

x = ...

(ii) Give a reason for your answer.

.....

(2)

(b) Find the value of *y*.
Give a reason for each step in your working.

y = ...

(2) **Q15**

(Total 4 marks)

Leave blank

16. Work out $\dfrac{5.9-4.3}{1.3+1.2}$

.....

(Total 2 marks)

Q16

17. (a) Factorise $5x-20$

.....

(1)

(b) Factorise y^2+6y

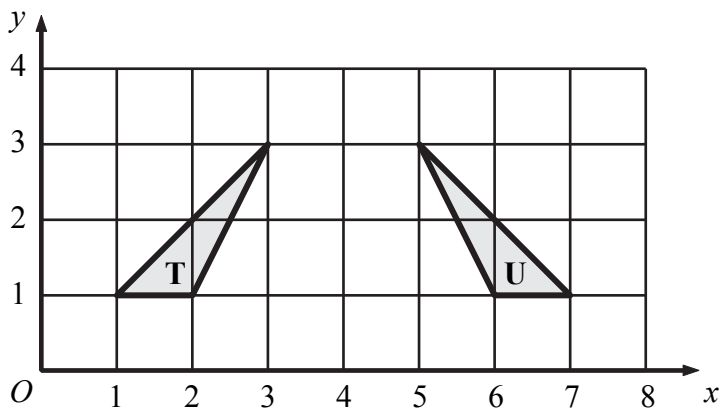
.....

(2)

(Total 3 marks)

Q17

18.



Describe fully the single transformation which maps triangle **T** onto triangle **U**.

.....

(Total 2 marks)

Q18

Leave blank

19. 56% of the students in a school are girls.
There are 420 girl students in the school.

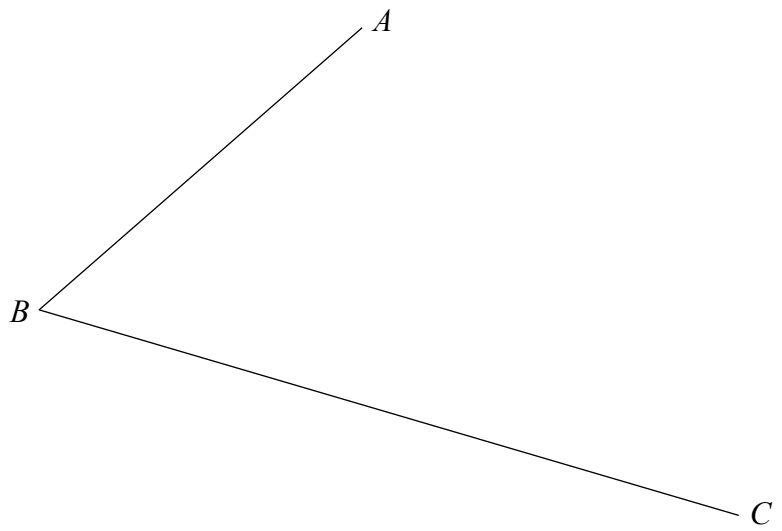
Work out the number of students in the school.

.....

(Total 3 marks)

Q19

20. Use ruler and compasses to construct the bisector of angle *ABC*.
You must show all construction lines.



Q20

(Total 2 marks)

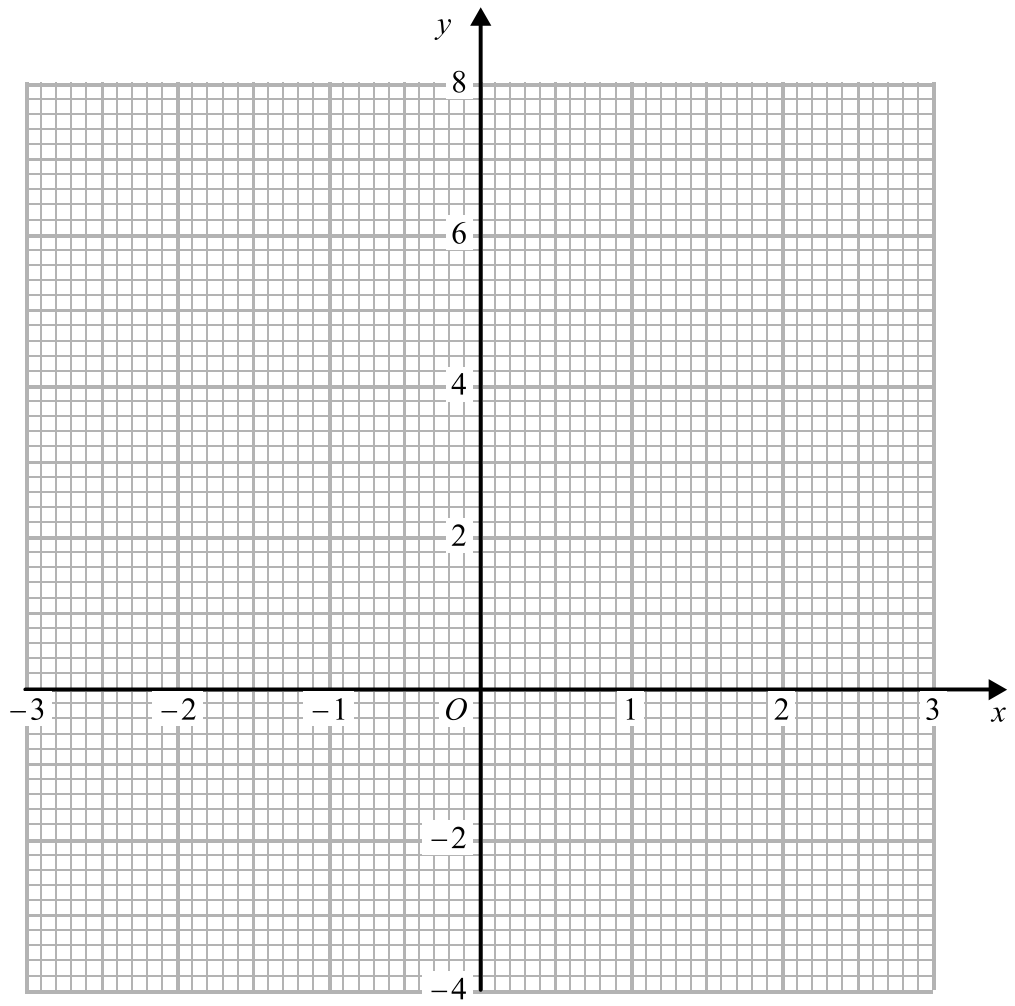
Leave blank

21. (a) Complete the table of values for $y = x^2 - 2$

x	−3	−2	−1	0	1	2	3
y			−1				

(2)

(b) On the grid, draw the graph of $y = x^2 - 2$



(2) **Q21**

(Total 4 marks)

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22.

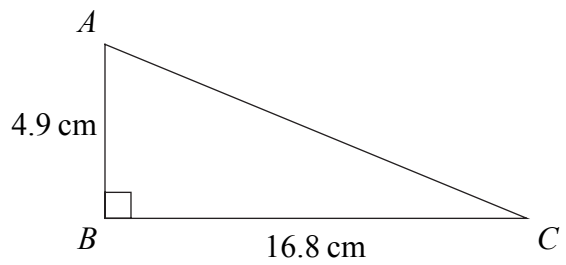

Diagram **NOT** accurately drawn

ABC is a triangle.
Angle *ABC* = 90°.
AB = 4.9 cm.
BC = 16.8 cm.

Calculate the length of *AC*.

..... cm

Q22

(Total 3 marks)

TOTAL FOR PAPER: 100 MARKS

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