Centre No.						Paper Reference							Surname	Initial(s)
Candidate No.						4	4	0	0	/	1	F	Signature	

Paper Reference(s)

4400/1F

Examiner's use only

Team Leader's use only

London Examinations IGCSE

Mathematics

Paper 1F

Foundation Tier

Thursday 5 November 2009 – Morning

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 24 questions in this question paper. The total mark for this paper is 100.
There are 24 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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Turn over

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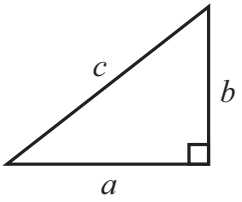
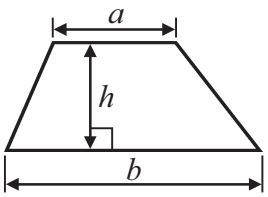
IGCSE MATHEMATICS 4400

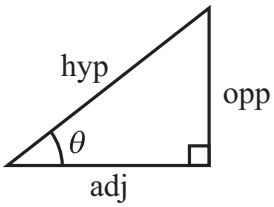
FORMULA SHEET – FOUNDATION TIER

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



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





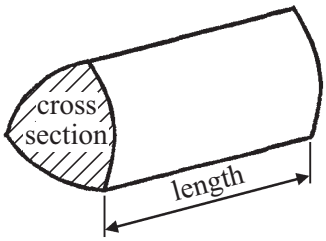
adj = hyp × cos θ
opp = hyp × sin θ
opp = adj × tan θ

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

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

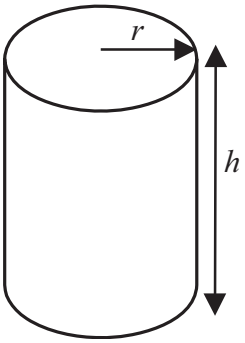
$\tan\theta = \frac{\text{opp}}{\text{adj}}$

Volume of prism = area of cross section × length



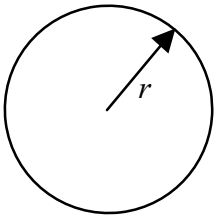
Circumference of circle = $2\pi r$

Area of circle = πr^2



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

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



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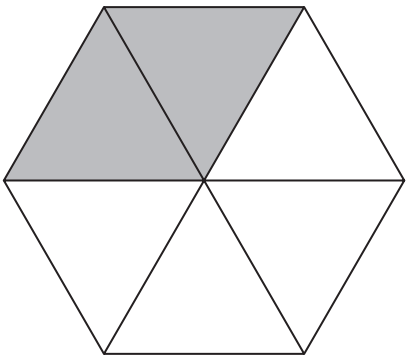
Answer ALL TWENTY FOUR questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

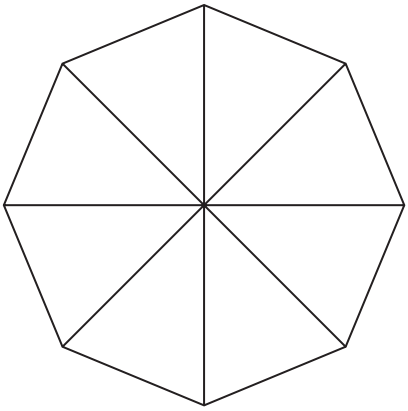
1. (a) What fraction of this shape is shaded?



.....

(1)

(b) Shade 75% of this shape.



(1)

(c) Write 40% as a fraction.

.....

(1)

Q1

(Total 3 marks)

Leave blank

2.

6	8	11	16	26	38	60	63

From the numbers in the box, write down

(a) a multiple of 12

.....

(1)

(b) a square number,

.....

(1)

(c) a cube number,

.....

(1)

(d) a prime number.

.....

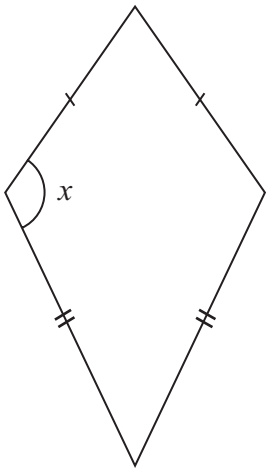
(1)

Q2

(Total 4 marks)

Leave blank

3. Here is a quadrilateral.



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

.....

(1)

(b) What type of angle is angle x?

.....

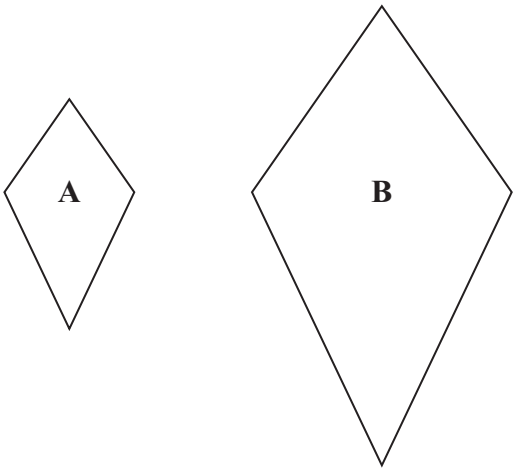
(1)

(c) How many lines of symmetry does this quadrilateral have?

.....

(1)

(d) Quadrilateral **B** is an enlargement of quadrilateral **A**.
Find the scale factor of the enlargement.



.....

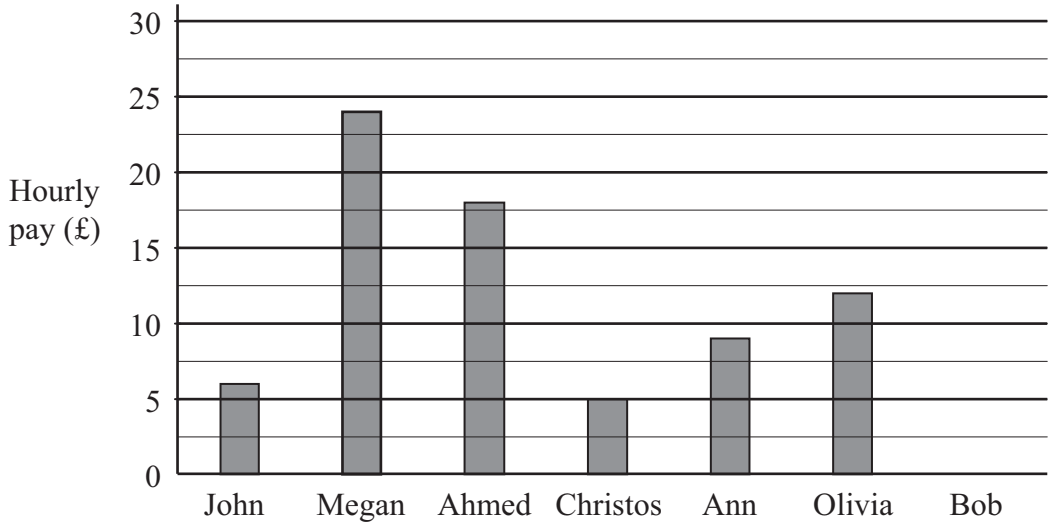
(1)

Q3

(Total 4 marks)

Leave blank

4. The bar chart shows the hourly pay of six workers.



(a) Write down Christos' hourly pay.

£ .....

(1)

(b) Write down Megan's hourly pay.

£ .....

(1)

(c) Which worker's hourly pay was £9?

.....

(1)

(d) Bob's hourly pay was £13
Draw a bar on the bar chart to show this information.

(1)

Leave blank

(e) Olivia's hourly pay is £12
Her hourly pay is increased by 70%.

Work out 70% of £12

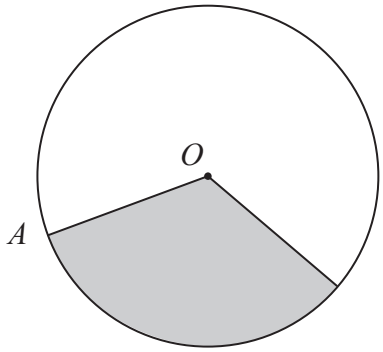
£ .....

(2)

Q4

(Total 6 marks)

5.



O is the centre of a circle.
A is a point on the circumference of the circle.
Write down the mathematical name for

(i) the line *OA*,

.....

(ii) the shaded region.

.....

Q5

(Total 2 marks)

Leave blank

6. $A = 3x - 5y$

Work out the value of A when $x = 6$ and $y = 2$

$A =$ .....

(Total 2 marks)

Q6

7. Here are the heights, in metres, of 6 trees.

2.7 2.5 3.3 2.5 3.2 2.6

(a) Find the modal height.

..... m

(1)

(b) Find the median height.

..... m

(2)

(c) Work out the mean height.

..... m

(2)

(d) One of the 6 trees is chosen at random.
Find the probability that the height of this tree is

(i) 2.7 m,

.....

(ii) less than 2.4 m.

.....

(2)

Q7

(Total 7 marks)

Leave blank

8. A large pack of sweets weighs 250 grams.
A small pack of sweets weighs 100 grams.

(a) Work out the total weight of 6 large packs of sweets and 7 small packs of sweets.
Give your answer in grams.

..... g
(2)

(b) Change your answer to part (a) to kilograms.

..... kg
(2)

A pack of Quizzles costs £1.35
Mark buys 5 packs of Quizzles.
He pays with a £10 note.

(c) How much change should Mark receive?

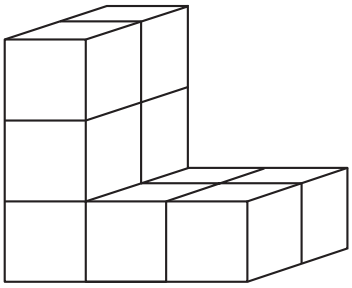
£ .....
(2)

Q8

(Total 6 marks)

Leave blank

9. The prism in the diagram is made from centimetre cubes.
Work out the volume of the prism.



..... cm^3

Q9

(Total 2 marks)

10. (a) (i) Find 2.8^4
Write down all the figures on your calculator display.

.....

(ii) Write your answer to part (a)(i) correct to 3 significant figures.

.....

(2)

(b) (i) Find $\sqrt{(23.4 + 48.1)}$
Write down all the figures on your calculator display.

.....

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

.....

(2)

Q10

(Total 4 marks)

Leave blank

11. (a) The rule for a sequence is

Term = 3 x Term number – 5

(i) Work out the term when the term number is 8

.....

(ii) Find the term number when the term is 55

.....

(3)

(b) Here are the first five terms of a sequence.

2.0 2.2 2.6 3.2 4.0

Write down the next two terms of the sequence.

..... , ...

(2)

Q11

(Total 5 marks)

Leave blank

12. (a) A rectangular field has length 30 m and width 25 m.

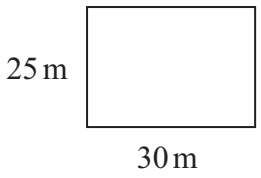


Diagram **NOT** accurately drawn

Calculate the area of the field.
Give the units of your answer.

....

(3)

(b) A square field has a perimeter of 280 m.
Work out the length of a side of the square.

..... m

(2)

Q12

(Total 5 marks)

Leave blank

13. Boat hire costs £5 for the first hour.

For times over 1 hour, there is an extra cost of £1.50 per hour.

(a) Mike hired a boat for 3 hours.
Calculate the total cost.

£ .....

(3)

(b) Davina hired a boat.
The total cost was £15.50

Work out the number of hours for which Davina hired the boat.

..... hours

(3)

Q13

(Total 6 marks)

Leave blank

14. (a) Show that $\frac{2}{3} \times \frac{1}{4} = \frac{1}{6}$

(2)

(b) Show that $\frac{2}{3} + \frac{1}{5} = \frac{13}{15}$

(2) **Q14**

(Total 4 marks)

15. Solve

(a) $\frac{x}{5} = 7$

$x =$ .....

(1)

(b) $8y - 9 = 5y + 3$

$y =$ .....

(3) **Q15**

(Total 4 marks)

Leave blank

16. (a) The diagram shows a regular octagon, with centre O.

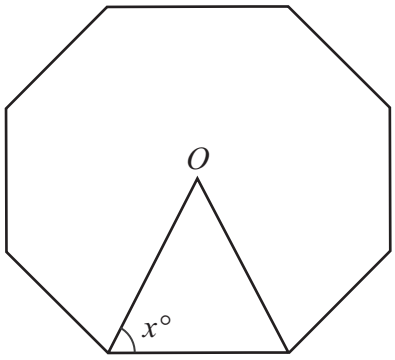


Diagram **NOT** accurately drawn

Work out the value of x.

$x =$ .....

(3)

(b) A regular polygon has an exterior angle of 30°.
Work out the number of sides of the polygon.

.....

(2) **Q16**

(Total 5 marks)

Leave blank

17. In a survey of 36 families, the number of people in each family was recorded. The table shows the results.

Number of people in the family	Frequency
1	3
2	2
3	7
4	13
5	11

Work out the mean number of people in these 36 families.

.....

Q17

(Total 3 marks)

Leave blank

18. Cups cost x dollars each.
Mugs cost $(x + 2)$ dollars each.

(a) Write down an expression, in terms of x, for the total cost of 12 cups and 6 mugs.

..... dollars
(2)

(b) The total cost of 12 cups and 6 mugs is 57 dollars.
Work out the cost of 1 cup.

..... dollars
(2)

Q18

(Total 4 marks)

Leave blank

19. (a) $S = \{1, 3, 5, 7\}$
$T = \{2, 3, 7, 11\}$

(i) List the members of $S \cap T$.

.....

(1)

(ii) How many members are there in $S \cup T$?

.....

(1)

(b) $U = \{3, 4, 5\}$
$U \cup V = \{1, 2, 3, 4, 5\}$

The set V has as few members as possible.
List the members of the set V.

.....

(1)

(c) $A = \{\text{Cats}\}$
$B = \{\text{Black animals}\}$

Describe the members of $A \cap B$.

.....

(1) **Q19**

(Total 4 marks)

20.

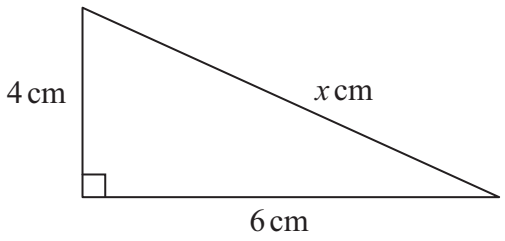


Diagram **NOT** accurately drawn

Calculate the value of x.
Give your answer correct to 3 significant figures.

$x =$ .....

Q20

(Total 3 marks)

Leave blank

21. (a) Calculate the circumference of a circle of radius 30 cm.
Give your answer correct to 3 significant figures.

..... cm
(2)

(b) The diagram shows a circle with radius 2.1 cm inside a square.
The circle touches the sides of the square.

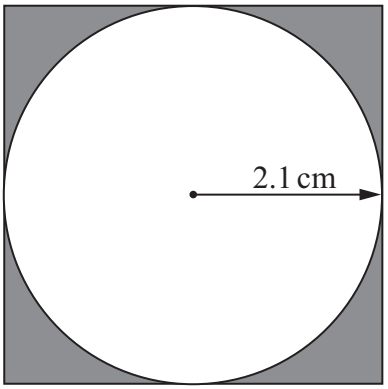


Diagram **NOT** accurately drawn

Work out the shaded area.
Give your answer correct to 3 significant figures.

..... cm^2
(4)

Q21

(Total 6 marks)

Leave blank

22. James throws a biased dice once.
The table shows all the possible scores and their probabilities.

Score	Probability
1	0.4
2	0.3
3	0.1
4	0.1
5	0.05
6	0.05

Find the probability that the score is more than 3

.....

(Total 2 marks)

Q22

Leave blank

23. (a) Expand and simplify fully $2(w - 3) + 3(w + 5)$

.....

(2)

(b) Solve the equation $\frac{x+5}{3} = 9$

$x =$ .....

(2)

(c) Solve the inequality $5y + 7 < 13$

.....

(2)

Q23

(Total 6 marks)

Leave blank

24. The diagram shows a prism.
The cross section of the prism is a right-angled triangle.
The lengths of the sides of the triangle are 8 cm, 15 cm and 17 cm.
The length of the prism is 20 cm.
Work out the total surface area of the prism.

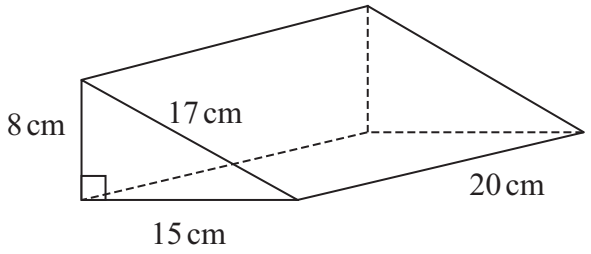


Diagram **NOT** accurately drawn

..... cm^2

Q24

(Total 3 marks)

TOTAL FOR PAPER: 100 MARKS

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