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|---------------|--|--|--|--|--|-----------------|---|---|---|---|---------|------------|-----------|
| Centre No.    |  |  |  |  |  | Paper Reference |   |   |   |   | Surname | Initial(s) |           |
| Candidate No. |  |  |  |  |  | 4               | 4 | 0 | 0 | / | 2       | F          | Signature |

Paper Reference(s)

**4400/2F**

**London Examinations IGCSE**

**Mathematics**

Paper 2F

**Foundation Tier**

Monday 1 June 2009 – Morning

Time: 2 hours

Examiner's use only

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Team Leader's use only

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**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.

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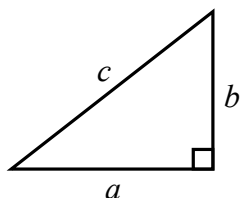
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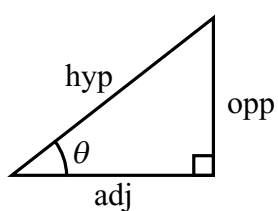
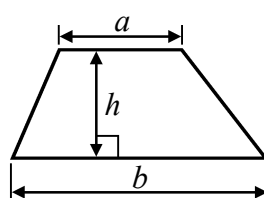
IGCSE MATHEMATICS 4400

FORMULA SHEET – FOUNDATION TIER

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



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



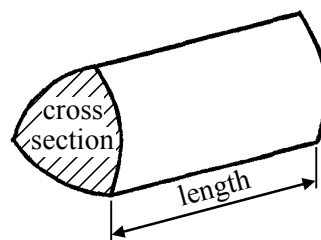
adj = hyp  $\times$  cos  $\theta$   
 opp = hyp  $\times$  sin  $\theta$   
 opp = adj  $\times$  tan  $\theta$

Volume of prism = area of cross section  $\times$  length

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

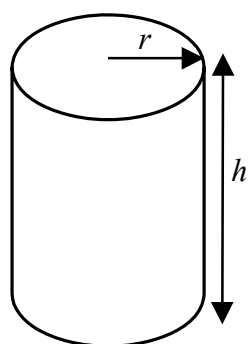
$\cos \theta = \frac{\text{adj}}{\text{hyp}}$

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



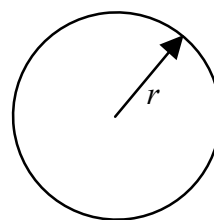
Circumference of circle =  $2\pi r$

Area of circle =  $\pi r^2$



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

Curved surface area of cylinder =  $2\pi r h$



Leave  
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Answer ALL TWENTY TWO questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1. (a) Here is a list of numbers.

1998    2001    998    1990    1908

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

.....

(ii) From the list, write down the odd number.

.....

(iii) From the list, write down the number that is a multiple of 4

.....

(iv) Use two numbers from the list to make this calculation correct.

$$\text{.....} - \text{.....} = 1000$$

(4)

(b) Here are four cards.  
Each card has a number on it.

|   |   |   |   |
|---|---|---|---|
| 7 | 3 | 8 | 4 |
|---|---|---|---|

The four cards are arranged to make the number 7384  
The cards can be rearranged to make other numbers.

(i) Write down the smallest number that can be made, using all four cards.

.....

(ii) Write down the largest **even** number that can be made, using all four cards.

.....

(3)

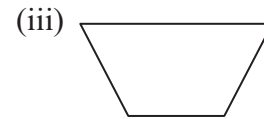
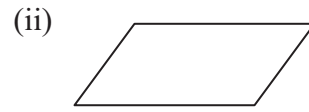
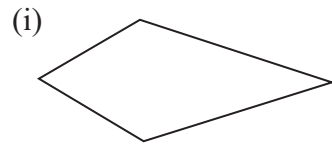
Q1

(Total 7 marks)



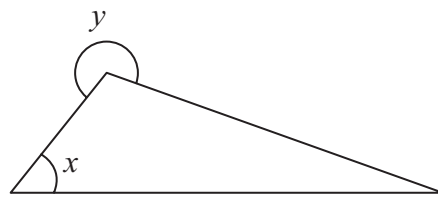
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2. (a) Write down the mathematical name for each of these quadrilaterals.



(i) ..... (ii) ..... (iii) ..... **(3)**

(b)



Write down the mathematical name for

(i) angle  $x$ ,

.....

(ii) angle  $y$ .

.....

**(2)**

**Q2**

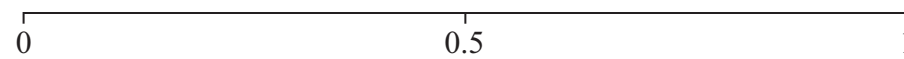
**(Total 5 marks)**

3. On the probability scale, mark with a cross (×)

(i) the probability that a fair coin will show Heads when it is thrown.  
Label this cross **A**.

(ii) the probability that the day after December 31st will be January 1st.  
Label this cross **B**.

(iii) the probability that the next birthday of a person chosen at random will be on a Tuesday.  
Label this cross **C**.



**Q3**

**(Total 3 marks)**



Leave  
blank

4. This formula gives the cost of hiring a heater for a number of days.

$$\text{cost in pounds} = 5 \times \text{number of days} + 12$$

- (a) Raj hired a heater for 4 days.  
Work out the cost.

£ .....  
(2)

- (b) Maria hired a heater.  
The cost was £47  
Work out the number of days for which Maria hired the heater.

.....  
(2)

(Total 4 marks)

Q4

5

Turn over



Leave  
blank

5. (a) Write down all the factors of 33

.....  
(2)

(b) Find the square root of 2116

.....  
(1)

(c) Work out  $3^5$

.....  
(1)

(d) Find the cube root of 17576

.....  
(1)

**(Total 5 marks)**

Q5

6. Cereal bars cost \$1.20 each.  
Biscuits cost \$0.75 each.  
Joshi buys 7 cereal bars and 6 biscuits.  
He pays with a \$20 note.

Work out how much change he should receive.

\$ .....

**(Total 3 marks)**

Q6



Leave  
blank

7. Marcus took 8 tests.  
Here are his marks in these tests.

10    6    17    15    7    6    14    13

- (a) Find the mode.

.....  
(1)

- (b) Work out the mean.

.....  
(3)

- (c) Marcus took another test.  
The mean for all 9 tests is the same as the mean for the first 8 tests.

Find Marcus' mark in the 9th test.

.....  
(1)

(Total 5 marks)

Q7

7

Turn over



Leave blank

8. (a) Work out the perimeter of this rectangle.

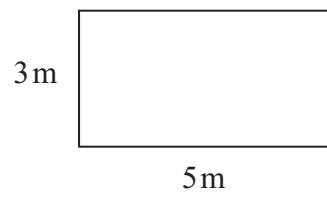


Diagram **NOT** accurately drawn

..... m  
(2)

(b) Another rectangle has length 7.2 m.

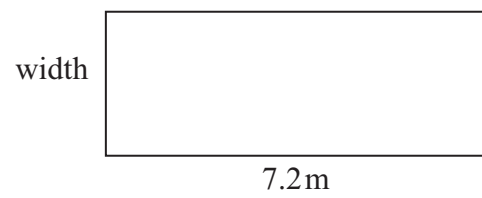


Diagram **NOT** accurately drawn

The area of the rectangle is  $46.8 \text{ m}^2$ .  
Work out the width of this rectangle.

..... m  
(2)

(Total 4 marks)

Q8





Leave  
blank

9. Here is a list of fractions.

$$\frac{6}{25} \quad \frac{4}{20} \quad \frac{3}{10} \quad \frac{9}{36}$$

(a) From the list, write down the fraction which is

(i) equivalent to  $\frac{1}{4}$

.....

(ii) equal to 0.2

.....

(2)

(b) Show that  $\frac{2}{3} \div \frac{5}{9} = 1\frac{1}{5}$

(3)

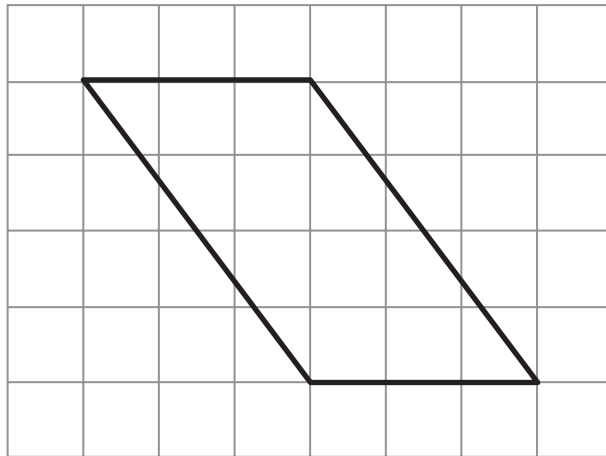
Q9

(Total 5 marks)



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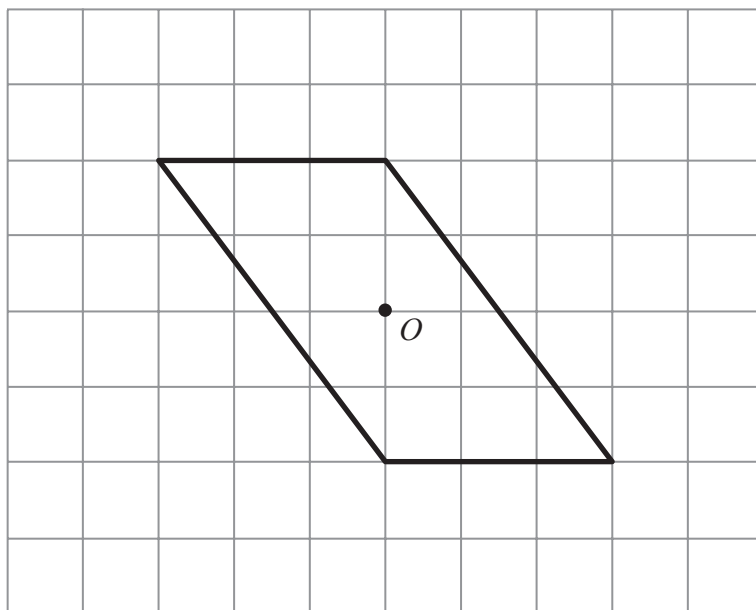
10. The diagram shows a parallelogram drawn on a 1 cm grid.



- (a) Find the area of the parallelogram.  
State the units of your answer.

.....  
(3)

- (b)



On the grid, rotate the parallelogram through  $90^\circ$  anticlockwise about the point  $O$ .

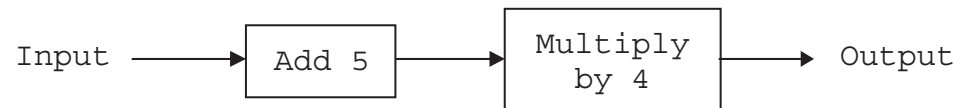
(2)  
(Total 5 marks)

Q10



Leave  
blank

11. Here is a number machine.



(a) Find the **output** when the **input** is 10

.....  
(2)

(b) Work out the **input** when the **output** is 28

.....  
(2)

(c) Work out the **input** when the **output** is  $-8$

.....  
(2)

(d) Find an expression, in terms of  $x$ , for the **output** when the **input** is  $x$ .

.....  
(2)

(Total 8 marks)

Q11

11

Turn over



Leave  
blank

12. The exchange rate from pounds to dollars is  $\text{£}1 = \$1.85$

- (a) Keith changes  $\text{£}250$  to dollars.  
How many dollars should he receive?

\$ .....  
(2)

- (b) Kate changes  $\$320$  to pounds.  
How many pounds should she receive?

£ .....  
(2)

- (c) Work out the exchange rate from dollars to pounds.  
Give your answer correct to 2 decimal places.

$\$1 = \text{£} \dots\dots\dots$   
(2)

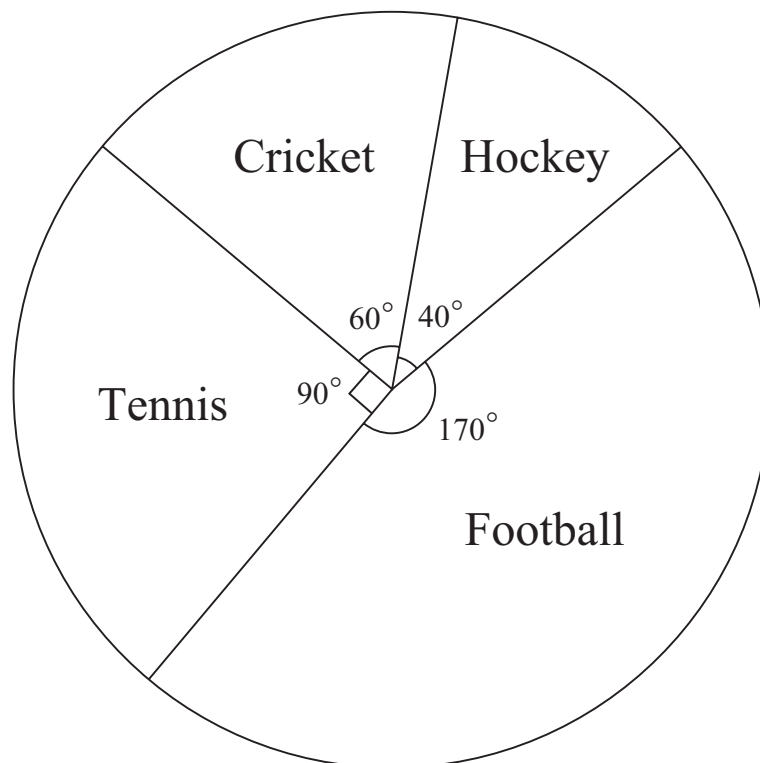
(Total 6 marks)

Q12



Leave  
blank

13. Some male students were asked to choose their favourite sport.  
The pie chart shows information about the results.  
The pie chart is drawn accurately.



- (a) 12 male students chose hockey.  
Work out the number of male students who chose tennis.
- .....
- (3)
- (b) A second pie chart is to be drawn for some female students.  
There are 240 female students.  
130 of the female students chose hockey.  
Calculate the angle in the second pie chart for the 130 female students.
- .....
- (2)

(Total 5 marks)

Q13



Leave  
blank

**14.** Angelou has  $x$  sweets.  
He eats 5 of these sweets.  
He puts all the sweets he has left into a bag.

- (a) Write down an expression, in terms of  $x$ , for the number of sweets that Angelou puts into the bag.

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

- (b) Nina has 3 times as many sweets as the number that Angelou put into the bag.  
Nina has 39 sweets.

- (i) Use this information to write down an equation in  $x$ .

.....

- (ii) Solve your equation to find the value of  $x$ .

$x =$  .....  
**(4)**

**(Total 5 marks)**

**Q14**



Leave  
blank

15. Work out the value of  $\frac{a(b+1)}{16}$  when  $a = 6$  and  $b = -9$

.....  
Q15

(Total 3 marks)

16. The table gives information about the shoe sizes of 67 people.

|                  |    |    |   |    |    |
|------------------|----|----|---|----|----|
| Shoe size        | 6  | 7  | 8 | 9  | 10 |
| Number of people | 20 | 19 | 0 | 26 | 2  |

Find the median shoe size.

.....  
Q16

(Total 2 marks)



Leave blank

17. (a) Calculate the circumference of a circle of radius 40 m.  
Give your answer correct to 3 significant figures.

..... m  
(2)

(b)

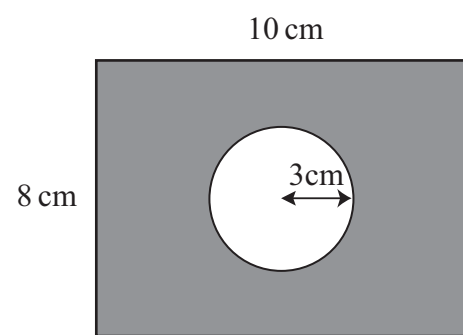


Diagram **NOT**  
accurately drawn

The diagram shows a circle inside a rectangle.  
The rectangle has length 10 cm and width 8 cm.  
The radius of the circle is 3 cm.

Calculate the area of the shaded region.  
Give your answer correct to 3 significant figures.

..... cm<sup>2</sup>  
(4)

(Total 6 marks)

Q17





Leave blank

18. The diagram shows a biased spinner, numbered 1, 2, 3 and 4

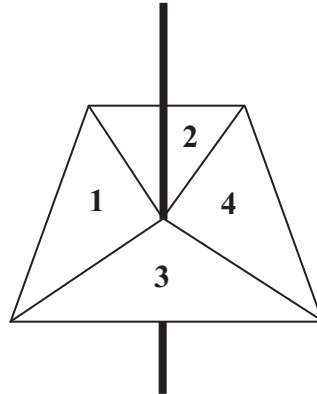


Diagram **NOT** accurately drawn

When the spinner is spun, the number on which it lands is the score.

The table shows the probabilities for three of the scores.

| Score | Probability |
|-------|-------------|
| 1     | 0.3         |
| 2     | 0.1         |
| 3     | 0.4         |
| 4     |             |

The spinner is spun once.  
Work out the probability that the score is

(a) 4

.....  
(2)

(b) an odd number.

.....  
(2)

(Total 4 marks)

Q18



Leave blank

19. (a)

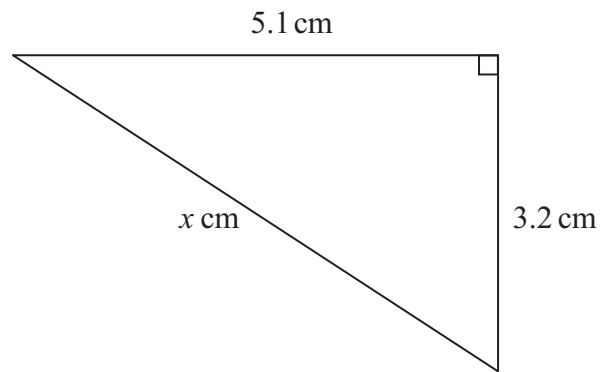


Diagram NOT accurately drawn

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

$x = \dots\dots\dots$   
(3)

(b)

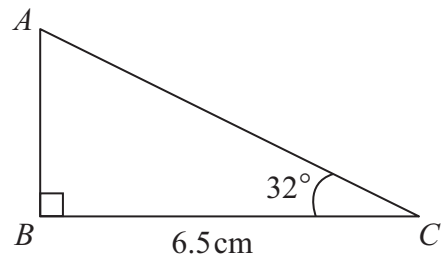


Diagram NOT accurately drawn

Calculate the length of  $AB$ .  
Give your answer correct to 3 significant figures.

$\dots\dots\dots$  cm  
(3)

Q19

(Total 6 marks)



20. Solve  $\frac{12-x}{3} = 7$

Leave blank

$x = \dots\dots\dots$

Q20

(Total 3 marks)

21. Express 132 as a product of its prime factors.

$\dots\dots\dots$

Q21

(Total 3 marks)

TURN OVER FOR QUESTION 22



Leave  
blank

22. Jagdeesh has to work out  $\frac{84.2 \times \sqrt{38.2}}{41.6}$  without using a calculator.

Use suitable approximations to work out an estimate for Jagdeesh's calculation.  
You **must** show all your working.

.....  
Q22

(Total 3 marks)

**TOTAL FOR PAPER: 100 MARKS**

**END**

