

Centre No.					
Candidate No.					

Paper Reference					
<b>4</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>/</b>	<b>2 F</b>

Surname	Initial(s)
Signature	

Paper Reference(s)

**4400/2F**

**London Examinations IGCSE  
Mathematics**

Paper 2F

**Foundation Tier**

Tuesday 11 May 2004 – Morning

Time: 2 hours

Examiner's use only

--	--	--

Team Leader's use only

--	--	--

Page Numbers	Leave Blank
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
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 and 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.

Printer's Log. No.

**N20709RA**



N 2 0 7 0 9 R A

W850/R4400/57570 4/4/4/1/3/1/3/1/3/500

This publication may only be reproduced in accordance with London Qualifications Limited copyright policy. ©2004 London Qualifications Limited.

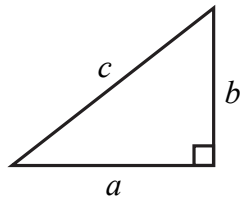
*Turn over*



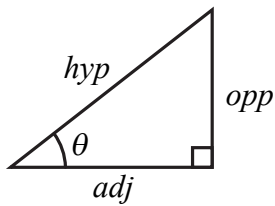
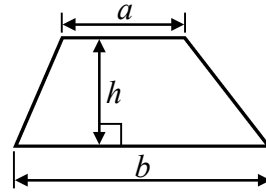
IGCSE MATHEMATICS 4400

FORMULA SHEET – FOUNDATION TIER

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



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



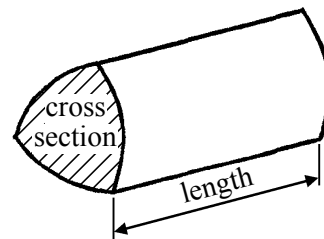
$adj = hyp \times \cos \theta$   
 $opp = hyp \times \sin \theta$   
 $opp = adj \times \tan \theta$

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

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

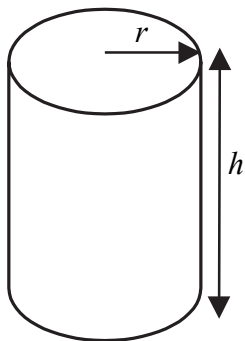
$$\cos \theta = \frac{adj}{hyp}$$

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



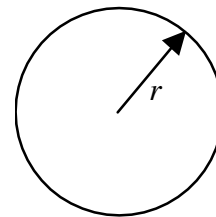
Circumference of circle =  $2\pi r$

Area of circle =  $\pi r^2$



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

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



**Answer ALL TWENTY FIVE questions.**

*Leave  
blank*

**Write your answers in the spaces provided.**

**You must write down all stages in your working.**

1. (a) Write down all the factors of 15.

.....  
(2)

- (b) Write down all the multiples of 4 which are between 15 and 25.

.....  
(2)

- (c) Write down all the prime numbers which are between 15 and 25.

.....  
(2)

- (d) Write down the first square number which is greater than 25.

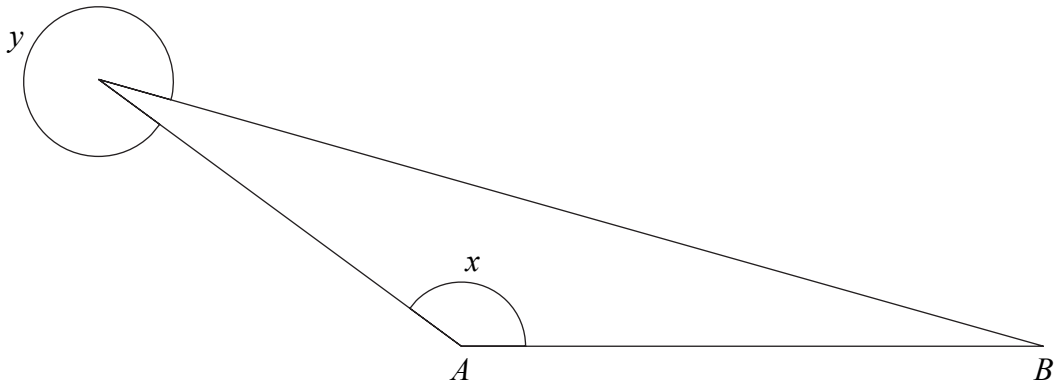
.....  
(1)

Q1

**(Total 7 marks)**

--

2.



Leave  
blank

- (a) Measure the length of the side  $AB$  of the triangle.  
Give your answer to the nearest millimetre.

..... cm  
(1)

- (b) (i) What type of angle is angle  $x$ ?

.....

- (ii) Measure the size of angle  $x$ .

.....  
°  
(2)

- (c) (i) What type of angle is angle  $y$ ?

.....

- (ii) Find the size of angle  $y$ .

.....  
°  
(2)

Q2

(Total 5 marks)

--

3. The word formula gives the time, in minutes, needed to cook a turkey.

*Leave  
blank*

$$\text{Time} = 40 \times \text{weight in kg} + 20$$

A turkey has a weight of 3.5 kg.

- (a) Work out the time, in minutes, needed to cook this turkey.

..... min  
(2)

The time needed to cook a different turkey is 260 minutes.

- (b) Work out the weight of the turkey.

..... kg  
(2)

A time of  $T$  minutes is needed to cook a turkey with a weight of  $W$  kg.

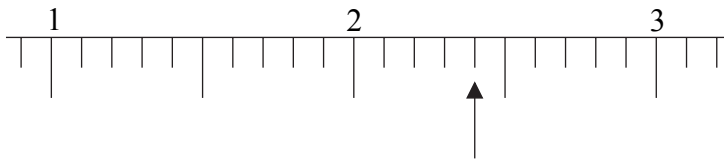
- (c) Write down a formula for  $T$  in terms of  $W$ .

.....  
(2)

**Q3**

**(Total 6 marks)**

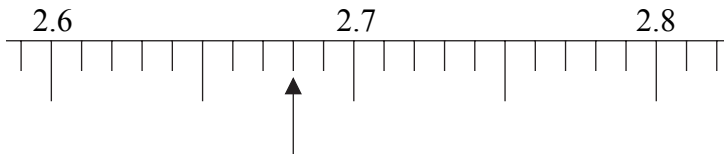
4.



Leave  
blank

(a) Write down the number marked with an arrow.

.....  
(1)



(b) Write down the number marked with an arrow.

.....  
(1)

(c) Round 7.298 to the nearest whole number.

.....  
(1)

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

0.71    0.701    0.071    0.7    0.07

.....  
(1)

(e) Write the number 8.362 correct to 1 decimal place.

.....  
(1)

(f) Write 0.19 as a fraction.

.....  
(1)

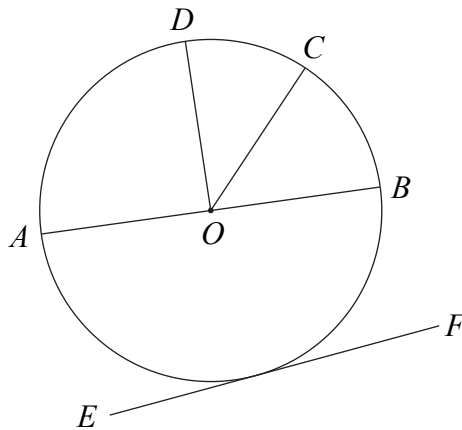
Q4

(Total 6 marks)

--

5. In the diagram, the points  $A$ ,  $B$ ,  $C$  and  $D$  lie on the circumference of a circle, centre  $O$ . The line  $EF$  touches the circle.

*Leave blank*



Write down the special name for

- (i) the line  $AB$ ,

.....

- (ii) the part of the circumference of the circle between  $C$  and  $D$ ,

.....

- (iii) the line  $EF$ .

.....

**Q5**

**(Total 3 marks)**

6. 52% of the students in a school are boys.

- (a) Work out the percentage of the students who are girls.

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

There are 450 students in the school.

- (b) Work out 52% of 450

.....  
**(2)**

**Q6**

**(Total 3 marks)**

7. Here is a list of the number of cups of coffee drunk by each of nine people on one day.

5    2    4    1    2    8    5    2    3

*Leave  
blank*

(a) Find the mode.

.....  
(1)

(b) Find the median.

.....  
(2)

(c) Work out the range.

.....  
(2)

**Q7**

**(Total 5 marks)**

8. (a) Simplify  $p \times q \times 4$

.....  
(1)

(b) Solve  $x - 6 = 3$

$x =$  .....  
(1)

(c)  $V = 3y - 2n$

Work out the value of  $y$  when  $V = 19$  and  $n = 7$ .

$y =$  .....  
(3)

**Q8**

**(Total 5 marks)**



9.

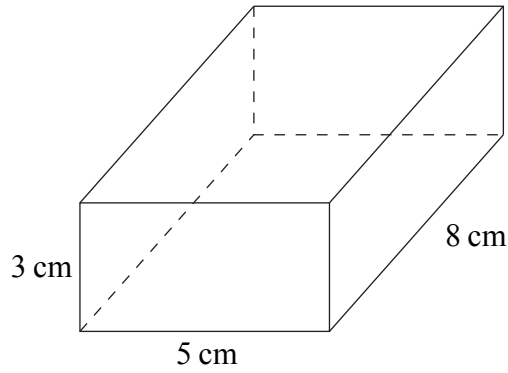


Diagram **NOT**  
accurately drawn

*Leave  
blank*

The diagram shows a cuboid.

(a) For the cuboid, write down

(i) the number of faces,

.....

(ii) the number of vertices.

.....

**(2)**

(b) Work out the volume of the cuboid.

.....  $\text{cm}^3$   
**(2)**

**Q9**

**(Total 4 marks)**

10. Two films, *Planet Wars* and *Star Track*, are showing at a cinema.

*Leave  
blank*

*Planet Wars* starts at 1635.

(a) Write 1635 using pm.

..... pm  
(1)

The running time of *Planet Wars* is 1 hour 40 minutes.

(b) At what time does *Planet Wars* end?

.....  
(1)

The running time of *Star Track* is 80 minutes.

*Star Track* ends at 1710.

(c) At what time does *Star Track* start?

.....  
(1)

(d) Find the ratio of the running time of *Planet Wars* to the running time of *Star Track*.  
Give your answer in its simplest form.

.....  
(2)

**Q10**

**(Total 5 marks)**

--

11. There are 15 counters in a bag.

*Leave  
blank*

8 of the counters are red.  
4 of the counters are blue.  
The rest of the counters are green.

Lee chooses a counter at random from the bag.

(a) Write down the probability that he will choose a red counter.

.....  
(2)

Lee removes a blue counter from the bag of 15 counters and does not replace it.  
He then chooses a counter at random from the bag.

(b) Work out the probability that he will choose a blue counter.

.....  
(2)

Q11

(Total 4 marks)

12. Paul flew from the UK to South Africa for a holiday.

The exchange rate was £1 = 11.85 Rand.  
He changed £1200 into Rand.

(a) How many Rand did he get?

..... Rand  
(2)

After his holiday, Paul changed 1659 Rand back into pounds.  
The exchange rate was still £1 = 11.85 Rand.

(b) How many pounds did he get?

£ .....  
(2)

Q12

(Total 4 marks)

13.  $C = 10 - 3x$

*Leave blank*

Work out the value of  $C$  when  $x = 2.7$

$C = \dots\dots\dots$

**Q13**

**(Total 2 marks)**

14. Work out the value of  $\frac{6.1+3.4}{5.7-1.9}$

$\dots\dots\dots$

**Q14**

**(Total 2 marks)**

15. Suhail cycles 117 km in 4 hours 30 minutes.  
Work out his average speed in km/h.

$\dots\dots\dots$  km/h

**Q15**

**(Total 3 marks)**

16. The mean height of a group of 4 girls is 158 cm.

*Leave  
blank*

(a) Work out the total height of the 4 girls.

..... cm  
(1)

Sarah joins the group and the mean height of the 5 girls is 156 cm.

(b) Work out Sarah's height.

..... cm  
(3)

**Q16**

**(Total 4 marks)**

17. Plumbers' solder is made from tin and lead.

The ratio of the weight of tin to the weight of lead is 1 : 2

(a) Work out the weight of tin and the weight of lead in 120 grams of plumbers' solder.

tin ..... g

lead ..... g  
(2)

(b) What weight of plumbers' solder contains 25 grams of tin?

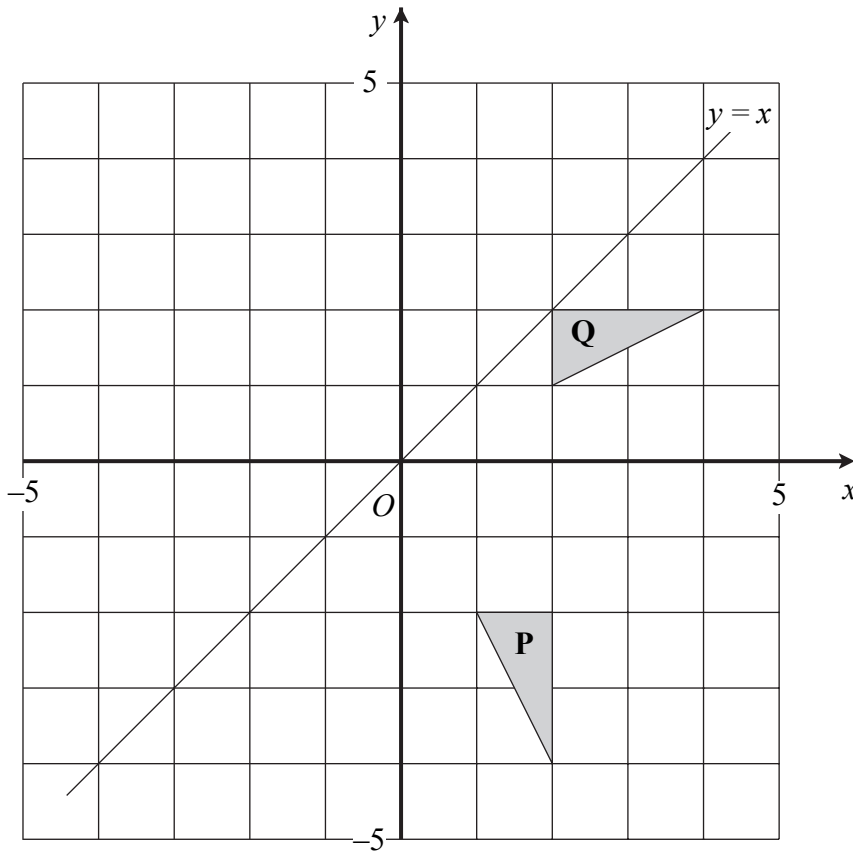
..... g  
(1)

**Q17**

**(Total 3 marks)**

18.

Leave  
blank



(a) Describe fully the single transformation which maps triangle **P** onto triangle **Q**.

.....  
.....

(3)

(b) Reflect triangle **Q** in the line with equation  $y = x$ .

(2)

Q18

(Total 5 marks)

19. This formula is used in science.

$$v = \sqrt{2gh}$$

*Leave  
blank*

Hanif uses the formula to work out an estimate for the value of  $v$  without using a calculator when  $g = 9.812$  and  $h = 0.819$

Write down approximate values for  $g$  and  $h$  that Hanif could use.

approximate value for  $g$  .....

approximate value for  $h$  .....

**Q19**

**(Total 2 marks)**

20. (a) Simplify  $n \times n \times n \times n$

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

(b) Simplify  $p^2 \times p^5$

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

(c) Simplify  $\frac{q^7}{q^3}$

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

**Q20**

**(Total 3 marks)**

21. Work out  $2\frac{2}{5} \times 1\frac{7}{8}$

*Leave  
blank*

Give your answer as a mixed number in its simplest form.

Q21

.....  
(Total 3 marks)

22. Solve  $4(x - 3) = 7x - 10$

Q22

$x =$  .....

(Total 3 marks)



23.

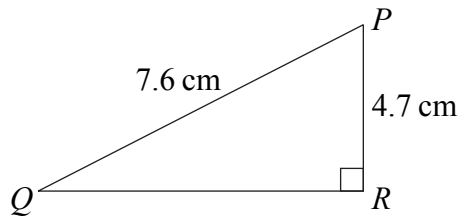


Diagram **NOT** accurately drawn

*Leave blank*

Triangle  $PQR$  is right-angled at  $R$ .  
 $PR = 4.7$  cm and  $PQ = 7.6$  cm.

- (a) Work out the size of angle  $PQR$ .  
Give your answer correct to 1 decimal place.

.....  
.....  
**(3)**

The length, 7.6 cm, of  $PQ$  is correct to 2 significant figures.

- (b) (i) Write down the upper bound of the length of  $PQ$ .

..... cm

- (ii) Write down the lower bound of the length of  $PQ$ .

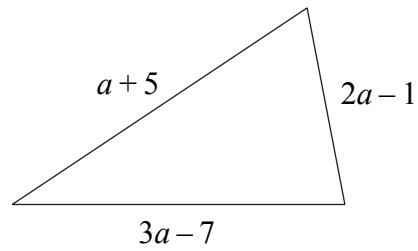
..... cm  
**(2)**

**Q23**

**(Total 5 marks)**

--

24.



*Leave  
blank*

The lengths, in cm, of the sides of a triangle are  $(a+5)$ ,  $(3a-7)$  and  $(2a-1)$ .  
The perimeter of the triangle is 24 cm.  
Work out the value of  $a$ .

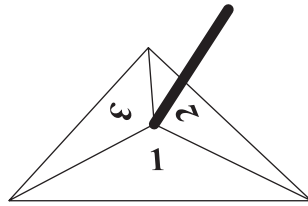
$a = \dots\dots\dots$

**(Total 3 marks)**

**Q24**

25. Here is a fair 3-sided spinner.

*Leave  
blank*



Its sides are labelled 1, 2 and 3 as shown.

(a) Vikram is going to spin the spinner once.

Write down the probability that it will land on

(i) 2,

.....

(ii) a number less than 3,

.....

(iii) a number greater than 4.

.....

**(3)**

(b) Aisha is going to spin the spinner twice.

Work out the probability that it will land on 1 both times.

.....

**(2)**

**Q25**

**(Total 5 marks)**

**TOTAL FOR PAPER: 100 MARKS**

**END**

**BLANK PAGE**

**Edexcel International  
London Examinations  
IGCSE**

**IGCSE Mathematics (4400)**

**Mark Schemes for May 2004 examination session**

**Paper 2F (Foundation Tier)**

No	Working	Answer	Mark	Notes
1		1, 3, 5, 15	2	B2 B1 for 2 correct and none wrong
		16, 20, 24	2	B2 B1 for 2 correct and none wrong
		17, 19, 23	2	B2 B1 for 2 correct and none wrong
		36	1	B1 cao
2		7.7	1	B1 Allow $\pm 0.1$
		obtuse	2	B1
		143		B1 Allow $\pm 2$
		reflex	2	B1
		339		B1 Allow $\pm 2$
3	$40 \times 3.5 + 20$	160	2	M1 A1 cao
	eg $40 \times ? + 20 = 260$	6	2	M1 A1 cao
		$T = 40W + 20$ oe	2	B2 B1 for $T =$ linear expression in $W$ B1 for $40W + 20$ oe
4		2.4	1	B1 cao
		2.68	1	B1 cao
		7	1	B1 cao
		0.07, 0.071, 0.7, 0.701, 0.71	1	B1 cao
		8.4	1	B1 cao
		$\frac{19}{100}$	1	B1 cao
5		diameter	3	B1
		arc		B1
		tangent		B1

No	Working	Answer	Mark	Notes
6	a	48	1	B1 cao
	b		2	M1
	$\frac{52}{100} \times 450$ oe	234		A1 cao
7	a	2	1	B1 cao
	b	1 2 2 2 3 5 5 4 8	2	M1
	c	3 7	2	A1 B2 B1 for 1-8 oe
8	a	$4pq$	1	B1 Accept $4qp$ . Not $pq4$
	b	9	1	B1 cao
	c	$19 = 3y - 2 \times 7$ $3y = 19 + 14$	3	M1 M1 A1 cao
9	ai	6	2	B1 cao
	ii	8		B1 cao
	b	$5 \times 3 \times 8$	2	M1 A1 cao
10	a	4 35	1	B1 cao
	b	1815	1	B1 Accept 6 15pm
	c	1550	1	B1 Accept 3 50pm
	d	100 : 80 oe 5 : 4	2	M1 eg 1.25:1 A1 4:5 SC B1
11	a	$\frac{8}{15}$ oe	2	B2 B1 for fraction <1 with numerator 8 or denominator 15
	b	$\frac{3}{14}$ oe	2	B2 B1 for fraction <1 with numerator 3 or denominator 14

No	Working	Answer	Mark	Notes
12	a	$1200 \times 11.85$	2	M1
	b	$1659 \div 11.85$	2	A1 cao M1 A1 cao
13	$10 - 3 \times 2.7$	1.9	2	M1 A1 cao
14	$\frac{9.5}{3.8}$	2.5	2	M1 for 9.5 or 3.8 seen A1 cao
15	4.5 oe zien $\frac{117}{\text{"4.5"}}$	26	3	B1 M1 for $\frac{117}{\text{time}}$ eg $\frac{117}{4.3(0)}$ A1 cao
16	a	632	1	B1 cao
	b	$5 \times 156$ or 780 "780"-"632"	148	M1 M1 (dep M1) A1 cao
17	a	40 80	2	B1 cao B1 cao
	b	75	1	B1 cao
18	a	Rotation $90^\circ$ (0, 0) or origin	3	B1 not "turn" B1 If 2 transfs given, B0B0B0 B1
	b	Correct image	2	B2 (B1 for 2 vertices correct)



No	Working	Answer	Mark	Notes
19		10 & 0.8 or 9.8 & 1 or 10 & 1	2	B2 B1 for 9.8 & 0.8
20	a	$n^4$	1	B1 cao
	b	$p^7$	1	B1 cao
	c	$q^4$	1	B1 cao
21	$\frac{12}{5} \times \frac{15}{8}$ $\frac{180}{40}$ or simpler inc $\frac{9}{2}$	$4\frac{1}{2}$	3	M1 Not 2.4 x 1.875 A1 Not 4.5 A1 cao
22	$4x - 12 = 7x - 10$ $-12 + 10 = 7x - 4x$ or $-2 = 3x$	$-\frac{2}{3}$ oe	3	B1 for $4x - 12$ seen M1 A1
23	a	$\sin \angle PQR = \frac{4.7}{7.6} = 0.6184\dots$	3	M1 for sin & $\frac{4.7}{7.6}$ or 0.6184... M1 $\sin^{-1}(0.6184\dots)$ May be implied A1 for 38.2 or better
	bi	38.2	2	B1 Accept 7.649
	ii	7.65 7.55		B1 cao
24	$a + 5 + 3a - 7 + 2a - 1 = 24$ $6a - 3 = 24$	4.5 oe	3	M1 M1 A1

No	Working	Answer	Mark	Notes
25	ai	$\frac{1}{3}$	1	B1
	ii	$\frac{2}{3}$	1	B1
	iii	0	1	B1
	b	$\frac{1}{3} \times \frac{1}{3}$ or all 9 combinations shown eg 2 way table or list		2
		$\frac{1}{9}$		A1

Accept  $\frac{0}{3}$