| 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

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Team Leader's use only

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# London Examinations IGCSE

## Mathematics

Paper 1F

# Foundation Tier

Thursday 15 May 2008 – 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.
**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 21 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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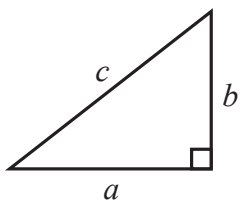
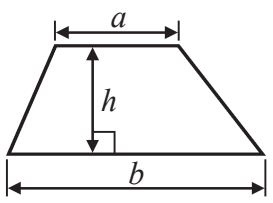
**IGCSE MATHEMATICS 4400**

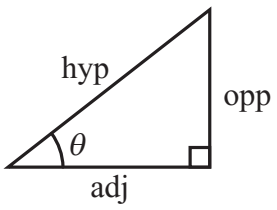
**FORMULA SHEET – FOUNDATION TIER**

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




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



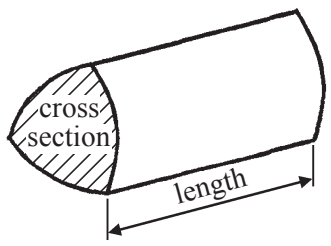

adj = hyp × cos $\theta$
opp = hyp × sin $\theta$
opp = adj × tan $\theta$

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

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

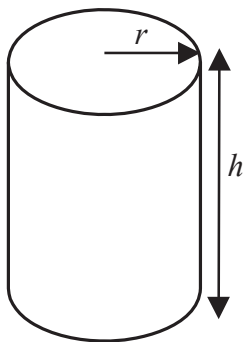
$\tan\theta = \frac{\text{opp}}{\text{adj}}$

Volume of prism = area of cross section × length



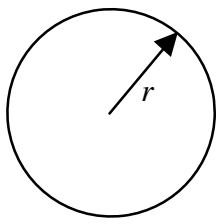

Circumference of circle = $2\pi r$

Area of circle = $\pi r^2$




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

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



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**Answer ALL TWENTY ONE questions.**

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

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

**Without sufficient working, correct answers may be awarded no marks.**

**1.** (a) Write the number **seven thousand and six** in figures.

.....

**(1)**

(b) Write the number 8532 correct to the nearest thousand.

.....

**(1)**

(c) Write down the value of the 5 in the number 8532

.....

**(1)**

(d) Write a number on the dotted line so that the calculation is correct.

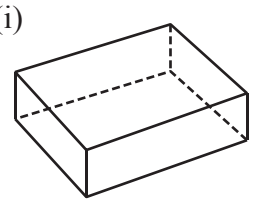
**849 – ..... = 523**

**(1)** **Q1**

**(Total 4 marks)**

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

(i)



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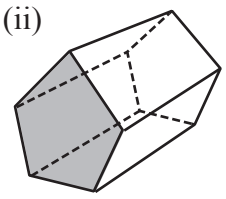
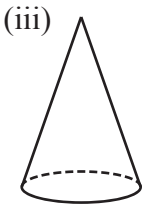
(ii)



.....

(iii)



.....

**(3)**

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

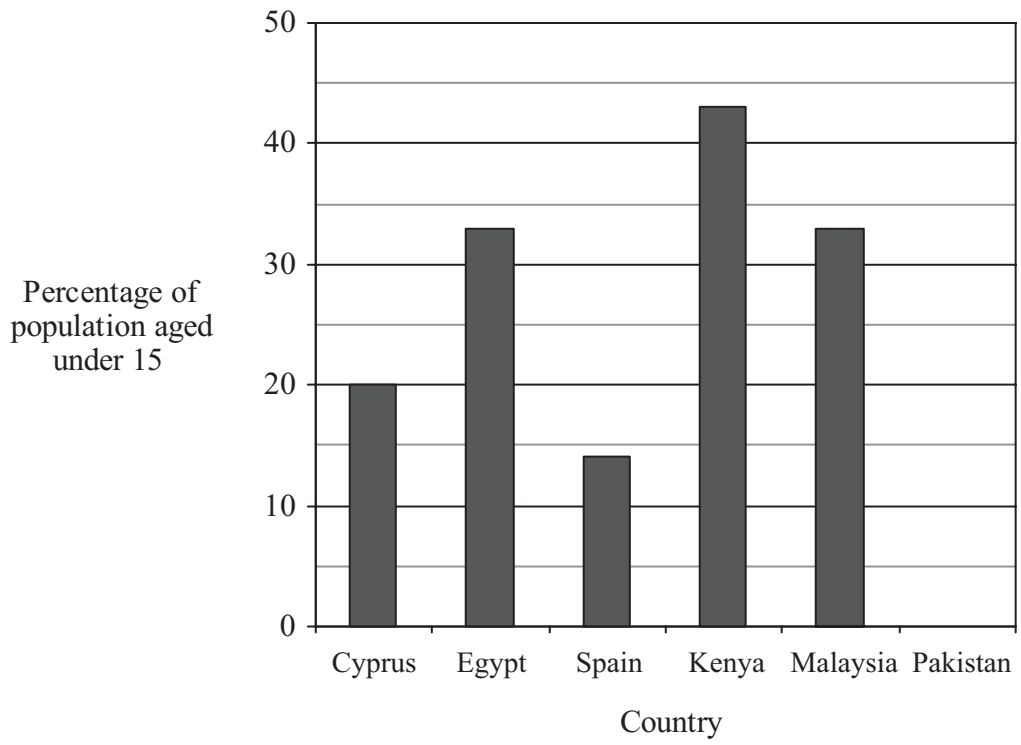
.....

**(1)** **Q2**

**(Total 4 marks)**

Leave blank

**3.** The bar chart shows, for each of five countries, the percentage of the population aged under 15.




(a) Which two countries have the same percentage of their populations aged under 15?

..... and .....

**(1)**

(b) (i) What percentage of Cyprus's population is aged under 15?

..... %

(ii) Change your answer to part (i) to a fraction.
Give your fraction in its simplest form.

.....

**(3)**

(c) What percentage of Spain's population is aged under 15?

..... %

**(1)**

Leave blank

(d) (i) Which country has 43% of its population aged under 15?

.....

(ii) Write 43% as a decimal.

.....

**(2)**

39% of Pakistan's population is aged under 15

(e) (i) Draw a bar on the bar chart to show this information.

(ii) Work out the percentage of Pakistan's population aged **15 or over**.

..... %

**(2)**

**Q3**

**(Total 9 marks)**

Leave blank

**4.** Here are some patterns made from sticks.

Pattern number 1 | Pattern number 2 | Pattern number 3

(a) Draw Pattern number 4

**(1)**

This rule can be used to find the number of sticks in one of these patterns.

| Multiply the pattern number by 2 and then add 1 |
|---|

(b) Work out the number of sticks in Pattern number 10

.....

**(2)**

(c) Work out the Pattern number of the pattern with 37 sticks.

Pattern number = .....

**(2)**

(d) Explain why it is not possible to make one of these patterns with 60 sticks.

.....

.....

**(1)**

Leave blank

(e) $n$ is the number of sticks in Pattern number $p$.
Write down a formula for $n$ in terms of $p$.

.....

**(3)**

**Q4**

**(Total 9 marks)**

**5.** Here are the numbers of questions on eight IGCSE mathematics Foundation papers.

21 25 24 18 24 23 19 22

(a) Work out the range of these numbers.

.....

**(2)**

(b) Work out the median of these numbers.

.....

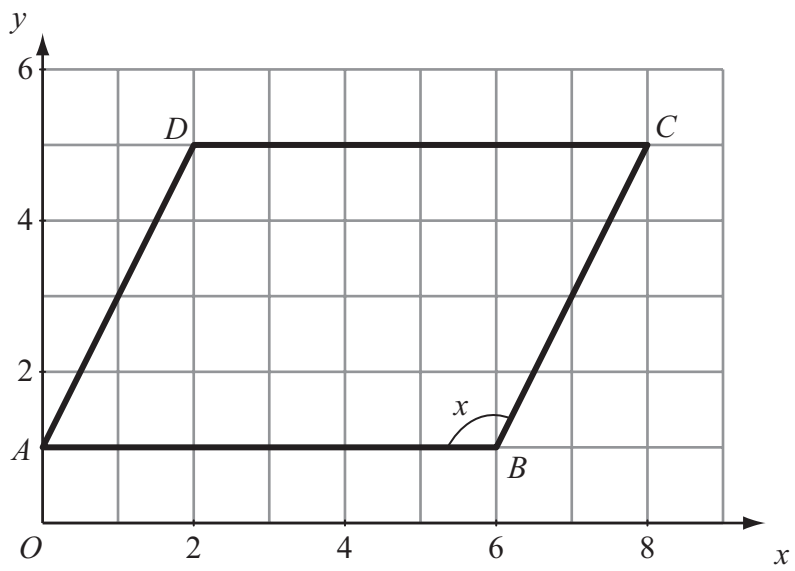
**(2)**

**Q5**

**(Total 4 marks)**

Leave blank

**6.** A parallelogram *ABCD* has been drawn on the centimetre grid.




(a) Work out the area of the parallelogram.

..... $cm^2$
**(2)**

(b) Find, by measuring, the perimeter of the parallelogram.

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

(c) Write down how many lines of symmetry the parallelogram has.

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

(d) Write down the order of rotational symmetry of the parallelogram.

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

Leave blank

(e) (i) Measure the size of angle $x$.

.....°

(ii) What type of angle is angle $x$?

.....

**(2)**

(f) Find the coordinates of the midpoint of $AC$.

(..... , .....)

**(2)**

**Q6**

**(Total 10 marks)**

**7.** (a) Simplify $p + p + p - p + p - p$

.....

**(1)**

(b) Simplify $xy + xy + xy + xy$

.....

**(1)**

(c) Simplify $4g - 3h + 5g - 2h$

.....

**(2)**

**Q7**

**(Total 4 marks)**

Leave blank

**8.** Here are 9 cards.
Each card has a number on it.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **20** | **21** | **22** | **23** | **24** | **25** | **26** | **27** | **28** |

(a) From the numbers on the cards, write down

(i) a multiple of 9

.....

(ii) a factor of 80

.....

(iii) a square number

.....

(iv) a prime number.

.....
**(4)**

(b) Chitra takes at random one of these cards.

Find the probability that she takes an even number.

.....
**(2)** **Q8**

**(Total 6 marks)**

Leave blank

**9.** (a) Find a fraction that is equivalent to $\frac{4}{9}$

.....

**(1)**

(b) Work out $\frac{4}{5}$ of 65 kg.

..... kg

**(2)**

(c) Write these fractions in order of size.
Start with the smallest.

$\frac{7}{8}$ $\frac{9}{10}$ $\frac{17}{20}$ $\frac{22}{25}$

.....

**(2)** **Q9**

**(Total 5 marks)**

**10.** Here is an isosceles triangle.

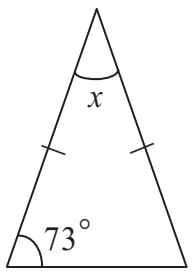



Diagram **NOT** accurately drawn

Work out the size of angle $x$.

..... °

**Q10**

**(Total 3 marks)**

Leave blank

**11.** (a) (i) Find the cube of 19

.....

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

.....

**(2)**

(b) Find the value of $\dfrac{3.6\times4.8}{5.6-3.2}$

.....

**(2)**

**Q11**

**(Total 4 marks)**

**12.** Use ruler and compasses to **construct** an equilateral triangle with *AB* as its base.
You must show all construction lines.

*A* *B*

**Q12**

**(Total 2 marks)**

Leave blank

**13.** Pedro's salary was increased by 4.8%.
Before the increase, his salary was $23 500

(a) Work out his salary after the increase.

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

Cara's salary was increased from $28 250 to $29 832

(b) Work out the percentage increase in Cara's salary.

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

**Q13**

**(Total 6 marks)**

**14.** A bag contains red discs, black discs and white discs.
The number of black discs is equal to the number of white discs.
Selina is going to take a disc at random from the bag.
The probability that she will take a red disc is 0.6

Work out the probability that she will take a black disc.

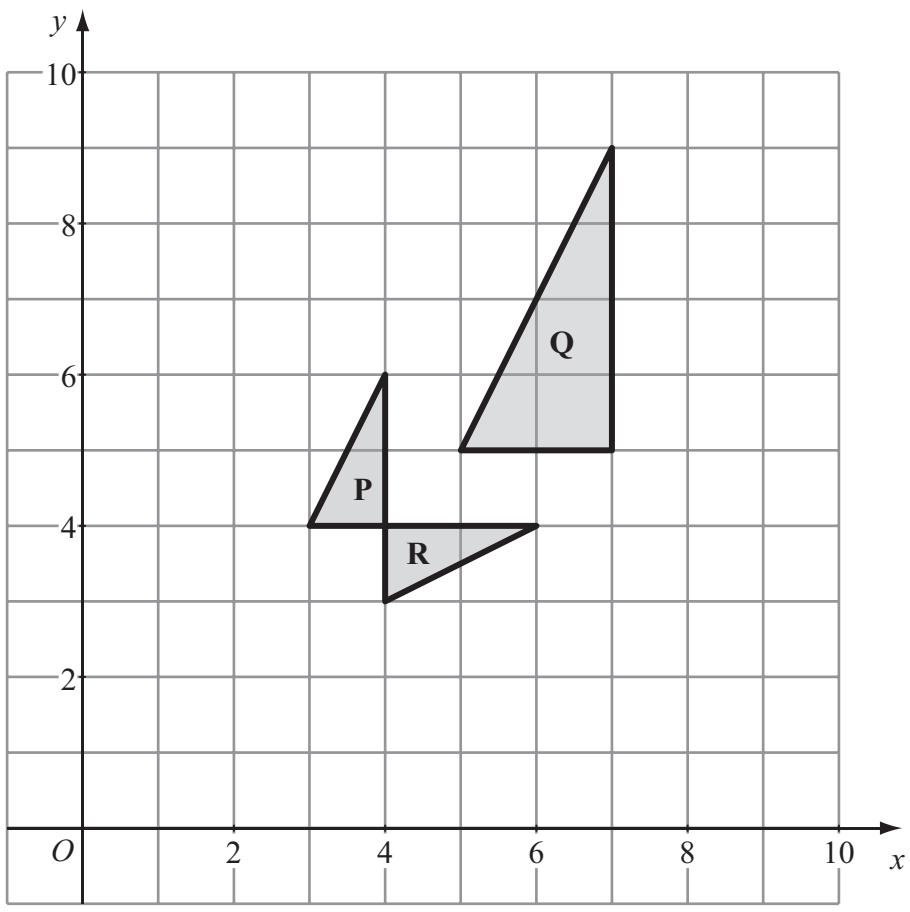
.....

**Q14**

**(Total 2 marks)**

Leave blank

**15.**




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

.....

**(3)**

(b) Describe fully the single transformation that maps triangle **P** onto triangle **R**.

.....

**(2)** **Q15**

**(Total 5 marks)**

Leave blank

**16.** Bronze is made from copper and tin.
The ratio of the weight of copper to the weight of tin is 3 : 1

Work out the weight of copper in 280 grams of bronze.

..... grams **Q16**

**(Total 2 marks)**

**17.** $\mathscr{E}$ = {odd numbers}
$A$ = {1, 5, 9, 13, 17}
$B$ = {1, 9, 17, 25, 33}
$C$ = {7, 11, 15}

(a) List the members of the set

(i) $A \cap B$,

.....

(ii) $A \cup B$.

.....

**(2)**

(b) Explain why $A \cap C = \varnothing$

.....

.....

**(1)** **Q17**

**(Total 3 marks)**

Leave blank

**18.**

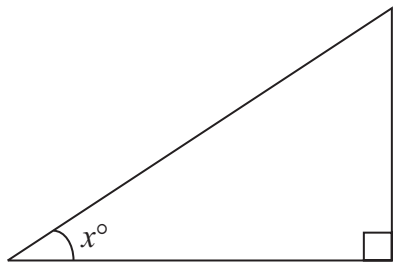



Diagram **NOT** accurately drawn

(a) Work out the area of the triangle.

..... $cm^2$

**(2)**

(b) Work out the value of $x$.
Give your value correct to 1 decimal place.

$x$ = .....

**(3)**

**Q18**

**(Total 5 marks)**

Leave blank

**19.** (a) Solve $7(x - 1) = 5 - 2x$
You must show sufficient working.

$x =$ .....

**(3)**

(b) (i) Solve the inequality $4x + 5 \leqslant 21$

.....

(ii) $n$ is a positive integer.

Write down all the values of $n$ which satisfy $4n + 5 \leqslant 21$

.....

**(4)** **Q19**

**(Total 7 marks)**

**20.** Mia's weight is 57 kg, correct to the nearest kilogram.

Write down

(i) the upper bound of her weight,

..... kg

(ii) the lower bound of her weight.

..... kg **Q20**

**(Total 2 marks)**

Leave blank

**21.** The table shows information about the pulse rates of 60 people, when they were resting.

| **Pulse rate** ($p$ beats/min) | **Frequency** |
|---|---|
| $50 < p \leqslant 60$ | 7 |
| $60 < p \leqslant 70$ | 21 |
| $70 < p \leqslant 80$ | 15 |
| $80 < p \leqslant 90$ | 14 |
| $90 < p \leqslant 100$ | 3 |

Work out an estimate for the mean pulse rate of the 60 people.

..... beats/min **Q21**

**(Total 4 marks)**

**TOTAL FOR PAPER: 100 MARKS**

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