Oxford Cambridge and RSA Examinations

General Certificate of Secondary Education

Mathematics C (Graduated Assessment) 1966/2342B (I)

INTERMEDIATE TIER TERMINAL PAPER – SECTION B

Specimen Paper 2003

Candidates answer on the question paper.

Additional materials:

Tracing paper (optional)
Geometrical instruments
Scientific or Graphical Calculator
Pie chart scale

TIME 1 hour

Candidate Name	Centre Number	Candidate Number

INSTRUCTIONS TO CANDIDATES

- Write your name, Centre number and candidate number in the boxes above.
- Answer **all** the questions.
- Write your answers, in blue or black ink, in the spaces provided on the question paper.
- Read each question carefully and make sure you know what you have to do before starting your answer.
- There is a space after most questions. Use it to do your working. In many questions marks will be given for correct working even if the answer is incorrect.

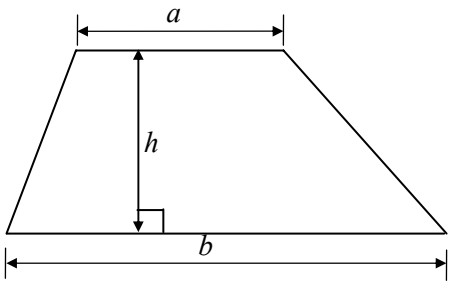
INFORMATION FOR CANDIDATES

- You are expected to use a calculator in Section B of this paper.
- The number of marks is given in brackets [ ] at the end of each question or part question.
- The total mark available for this Section is 50.

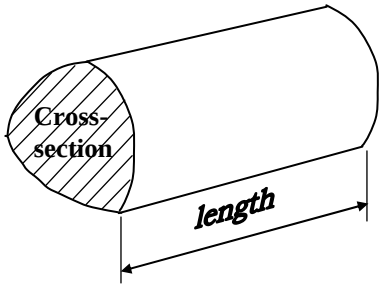
For Examiners' Use	
Section B	

FORMULA SHEET: INTERMEDIATE TIER

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



Volume of prism = (area of cross section) × length



13 Mr and Mrs Walker went on holiday to Denmark.

The rate of exchange between pounds and kroner was £1 = 11·70 kroner.

(a) Before they went, Mr Walker changed £225 into kroner.

How many kroner did he get?

(a) _____ kroner [2]

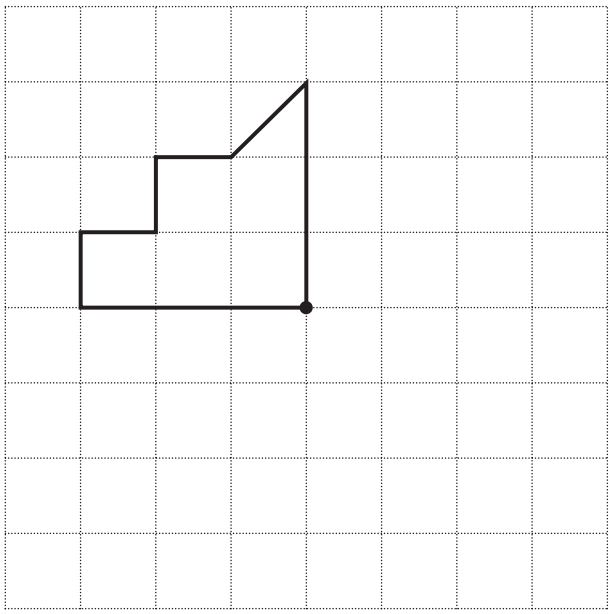
(b) Mrs Walker bought a ring for 680 kroner in Denmark.

How much did the ring cost in pounds?
Give your answer to the nearest penny.

(b) £_____ [3]

5

14



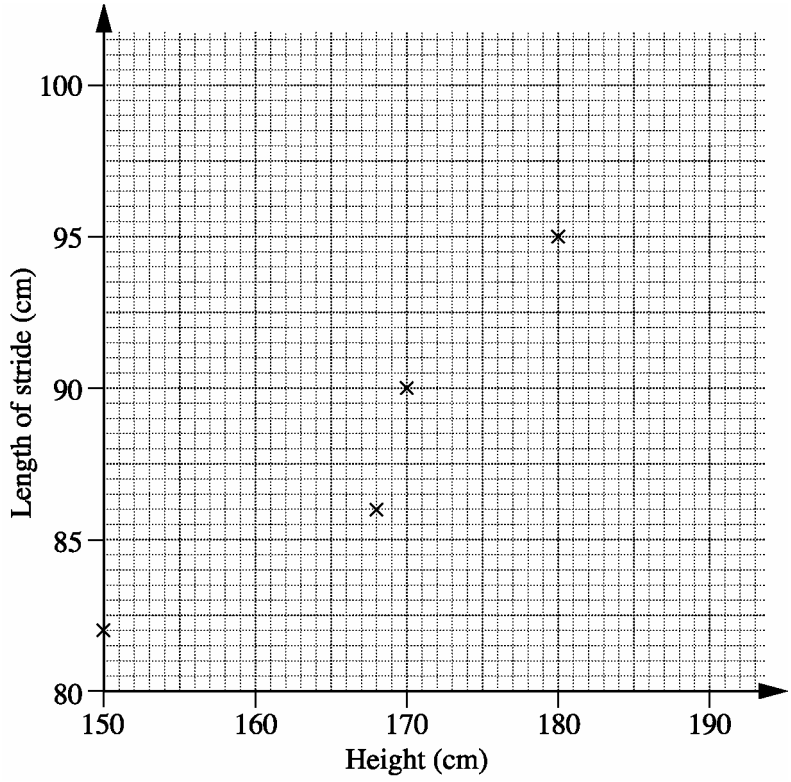
Complete the pattern so it has a rotational symmetry of order 4. [3]

3

15 Jackie recorded the heights and the lengths of the strides of 10 boys in her form.
These are the results.

Height (cm)	170	180	168	150	164	172	167	176	182	190
Length of stride (cm)	90	95	86	82	87	89	93	92	94	96

(a) Complete this scatter diagram to show these results.
The first four points have been plotted. [2]



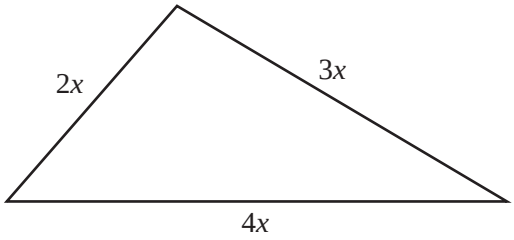
(b) Comment on the relationship between the height and the length of stride of the ten boys.

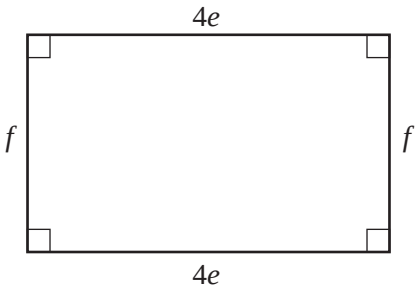
_____

_____ [1]

3

16 **(a)** Look at these shapes.





Write as simply as possible an expression for the perimeter of

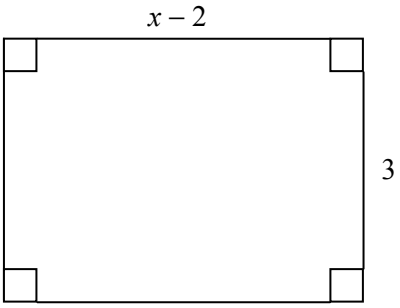
(i) the triangle,

(a)(i) _____ [1]

(ii) the rectangle.

(ii) _____ [2]

(b) Look at this rectangle.



Write, without brackets, an expression for the area of this rectangle.

(b) _____ [1]

4

17 Each year Brentwood School hold a sponsored swim.
The money raised is shared between two charities, A and B, in the ratio 5 : 1.

(a) In 1999 a total of £1800 was raised.

How much was given to charity A?

(a) £ _____ [2]

(b) In 2000 charity A was given £1850.

How much was given to charity B?

(b) £ _____ [2]

4

18 A circular picture frame has a piece of glass in the front with radius 11cm.

Work out the area of the glass.
Give your answer to a suitable degree of accuracy.

_____ cm^2 [3]

3

19 The equation $x^3 - 2x - 1 = 0$ has a solution between 1 and 2.

Use trial and improvement to find the solution correct to two decimal places.

You must show your trials.

$x =$ _____ [4]

4

20 The mean weight of the 14 girls in a class is 54·2 kg.

(a) Calculate the total weight of the 14 girls.

(a) _____ kg [1]

(b) The mean weight of the 11 boys in the class is 59·2 kg.

Calculate the mean weight of the 25 pupils in the class.

(b) _____ kg [2]

3

21 **(a)** Calculate

(i) $12 \cdot 9 - 4 \cdot 4 \times 7 \cdot 8 + 1 \cdot 2$,

(a)(i) _____ [1]

(ii) $100 - \sqrt{5 \times 5 \cdot 12 - 9 \cdot 6}$.

(ii) _____ [1]

(b) Calculate the following.

The sum of the cube of 12·5 and the square of 4·5, divided by the difference between 25·4 and the reciprocal of 2·5

(b) _____ [1]

3

22 Solve these simultaneous equations algebraically.
Show your working.

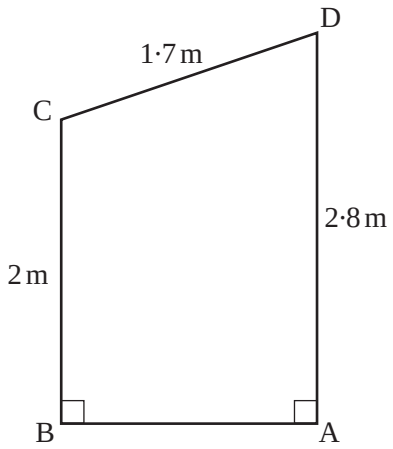
$$2x - y = 6$$
$$4x + 3y = 7$$

$x =$ _____

$y =$ _____ [3]

3

23 The diagram shows the end, ABCD, of a shed.
The shed is standing on horizontal ground.



Not to scale

(a) Calculate the area of ABCD.

(a) _____ m^2 [6]

(b) Calculate the angle CD makes with the horizontal.

(b) _____ ° [3]

9

24 **(a)** Ten years ago the population of Japan was $1 \cdot 5 \times 10^8$.
The population is now $1 \cdot 1983 \times 10^8$.

Calculate the percentage increase in the population.

(a) _____ % [2]

(b) The table shows the populations of three countries.

Country	Population
France	$6 \cdot 12 \times 10^7$
Finland	$7 \cdot 24 \times 10^6$
U.S.A.	$2 \cdot 16 \times 10^8$

(i) Calculate the total population of the three countries.
Give your answer to a reasonable degree of accuracy.

(b)(i) _____ [2]

(iii) The area of France is 213 000 square miles.

Calculate the average number of people per square mile in France.

(ii) _____ [2]

6