MATHEMATICS C   **1966/2342A**
(Graduated Assessment)

INTERMEDIATE TERMINAL PAPER – SECTION A

Tuesday	**7 JUNE 2005**	Afternoon	1 hour

Candidates answer on the question paper.
Additional materials:
    Geometrical instruments
    Pie chart scale (optional)
    Tracing paper (optional)

Candidate Name	Centre Number	Candidate Number

TIME   1 hour

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, on the dotted lines unless the question says otherwise.
- 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 a correct method even if the answer is incorrect.

INFORMATION FOR CANDIDATES

- The number of marks is given in brackets [ ] at the end of each question or part question.
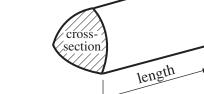- The total number of marks for this Section is 50.

WARNING

You are not allowed to use a calculator in Section A of this paper.

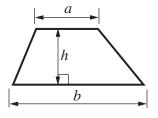| FOR EXAMINER'S USE	
Section A	
Section B	
TOTAL	

This question paper consists of 12 printed pages.

Formulae Sheet: Intermediate Tier

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

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

1 The diagram shows the positions of two piers, P and Q, and a ferry F.
P is due West of Q.

Not to scale

(a) Make an accurate scale drawing of triangle PQF.
Use a scale of **1 cm to 50 m**.

[3]

(b) Use your scale drawing to find the bearing of F **from P**.

(b) ....° [1]
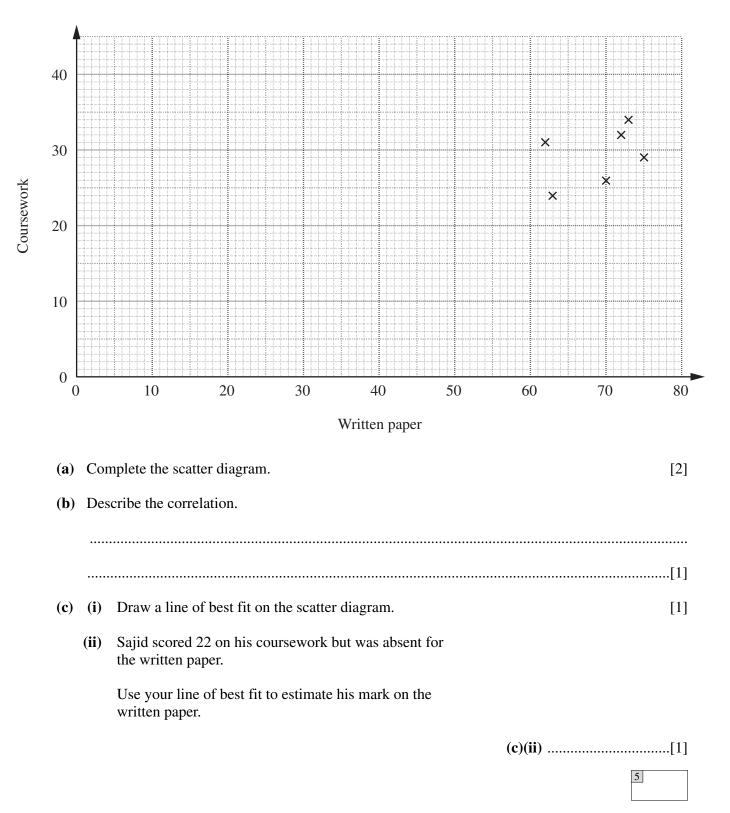
4

[Turn over

2 An examination paper consists of a written paper and a piece of coursework.
The marks for 12 candidates are shown below.

Written paper	75	73	72	70	63	62	60	55	52	47	33	15
Coursework	29	34	32	26	24	31	25	19	20	18	17	5

The marks for the first six candidates have been plotted on the scatter diagram below.

(a) Complete the scatter diagram. [2]

(b) Describe the correlation.

....

....[1]

(c) (i) Draw a line of best fit on the scatter diagram. [1]

(ii) Sajid scored 22 on his coursework but was absent for
the written paper.

Use your line of best fit to estimate his mark on the
written paper.

(c)(ii) ....[1]

5

3 **(a)** Work out.

    (i) 0.6×0.4

                                                   (a)(i) ....[1]

    (ii) 5^3

                                                   (ii) ....[1]

(b) Write $\dfrac{7}{8}$ as a decimal.

                                                   (b) ....[2]

(c) Write 70 out of 200 as a percentage.

                                                   (c) ....% [2]

(d) Work out.

$$2\frac{1}{4} + 1\frac{2}{3}$$

Give your answer as a mixed number in its lowest terms.

                                                   (d) ....[3]

                                                         9

4 **(a)** Solve.

$$\frac{x}{4} = 11$$

(a) ....[1]

(b)

Write down, as simply as possible, an expression for the perimeter of this pentagon.

(b) ....[2]

(c) Factorise.

$$10x - 15$$

(c) ....[1]

4	

5 Martin took part in a sponsored run.

(a) He ran 20 miles.

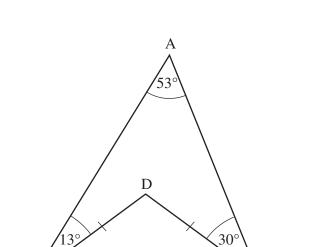It took him $2\frac{1}{2}$ hours to complete the run.

Calculate his average speed.

(a) ....mph [3]

(b) Martin raised a total of £32.

He divided this between the NSPCC and Oxfam in the ratio 5 : 3.

How much did he give to the NSPCC?

(b) £ ....[2]

5

[Turn over

6 **(a)**

A

53°

Not to scale

D

13° 30°

x x

B C

ABC and DBC are triangles.
BD = DC.

(i) Explain why $2x + 96 = 180$.

....

....

....[2]

(ii) Solve.

$2x + 96 = 180$

(a)(ii) ....[2]

(b)

Not to scale
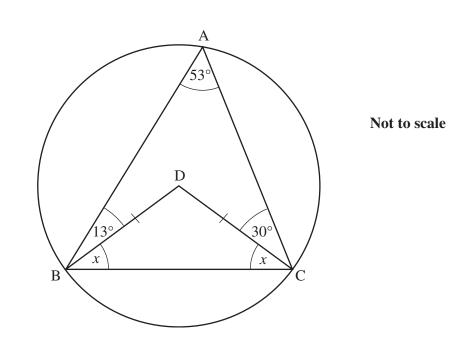
A circle is drawn through the points A, B and C.

Is D the centre of this circle?
Give a reason for your answer.

.... because ....

....

....[2]

6

[Turn over

7 **(a)** Simplify.

$$\frac{4x^2y^5}{x^3y^3}$$

(a) ....[2]

(b) **(i)** Factorise.

$$x^2 - 7x + 10$$

(b)(i) ....[2]

(ii) Hence solve.

$$x^2 - 7x + 10 = 0$$

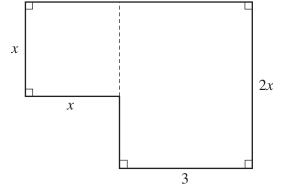**(ii)** ....[1]

5

8 All the lengths in this question are in metres.

The diagram shows the plan of a room.
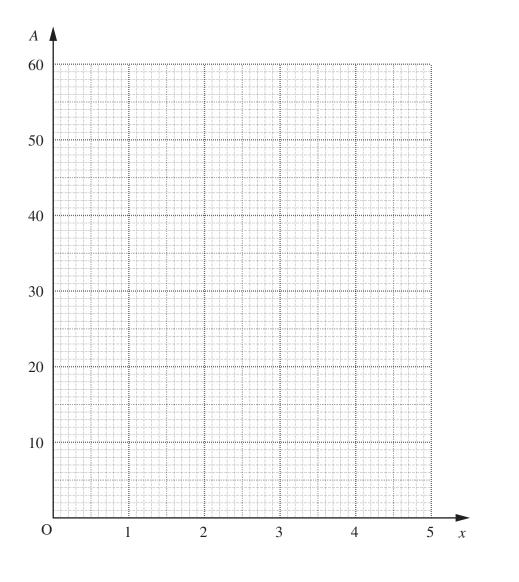
(a) Show that the area, A, of the room is given by

$$A = x^2 + 6x.$$

....

....

....

....[2]

(b) Complete the table for $A = x^2 + 6x$.

x	0	1	2	3	4	5
A	0		16	27	40	

[2]

(c) Draw the graph of $A = x^2 + 6x$ on the grid below.

[2]

(d) The area of the room is 35 m².

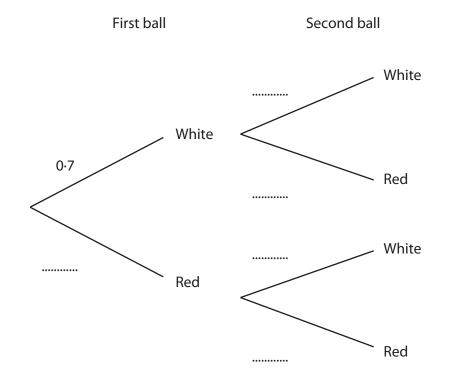Use your graph to find the length of the side x.

(d) ....m [1]

7

TURN OVER FOR QUESTION 9

9   A bag contains only white balls and red balls.

The probability of picking a white ball is 0·7.

Janet picks a ball from the bag without looking.
She notes its colour and replaces it.
She then picks another ball.

(a)   Complete the tree diagram.

First ball   Second ball

                                              White
                              ....
                White
                                              Red
        0·7   ....

                              ....   White
        ....
                Red
                                              Red
                              ....

[2]

(b)   What is the probability that Janet picks one ball of each colour?

(b)   ....[3]

5