

**GENERAL CERTIFICATE OF SECONDARY EDUCATION
MATHEMATICS C (Graduated Assessment)
INTERMEDIATE TERMINAL PAPER – SECTION A
MONDAY 15 JANUARY 2007**

I

2342A

Morning

Time: 1 hour

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



Candidate
Name

Centre
Number

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Candidate
Number

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INSTRUCTIONS TO CANDIDATES

- Write your name, Centre Number and Candidate Number in the boxes above.
- Answer **all** the questions.
- Use blue or black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure you know what you have to do before starting your answer.
- In many questions marks will be given for a correct method even if the answer is incorrect.
- Do **not** write in the bar code.
- Do **not** write outside the box bordering each page.
- **WRITE YOUR ANSWER TO EACH QUESTION IN THE SPACE PROVIDED. ANSWERS WRITTEN ELSEWHERE WILL NOT BE MARKED.**

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.

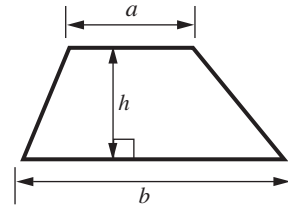
WARNING
**You are not allowed to use a
calculator in Section A of this paper.**

For Examiner's Use	
Section A	
Section B	
Total	

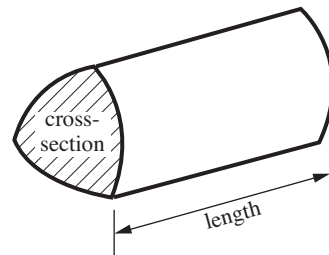
This document consists of **12** printed pages.

Formulae Sheet

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



Volume of prism = (area of cross-section) \times length



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3

1 The times, in seconds, it took 23 students to swim one length of a pool are listed below.

47 45 31 59 37 61 57 42 49
59 46 49 52 38 46 41 56 32
39 42 48 49 53

(a) Draw a stem and leaf diagram for these results.

Key:

[3]

(b) Find the median time.

(b) seconds [1]

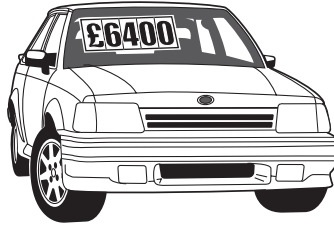
(c) One of these students is chosen at random.

What is the probability that this student took more than 50 seconds?

(c)..... [2]

6

- 2 Elizabeth chooses a new car.
The cash price is £6400.



Elizabeth buys this car on credit.

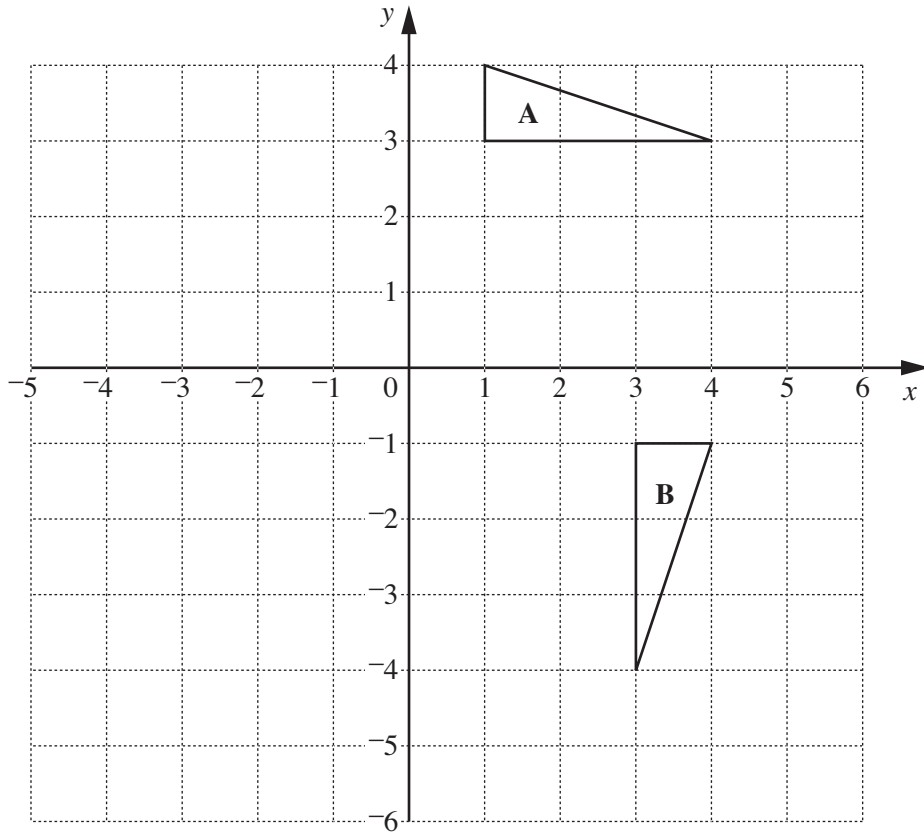
She has to pay :

A deposit of 25% of the cash price
AND
24 monthly payments of £250

How much **more** than the cash price will she pay for the car?

£ [5]

5



(a) Describe fully the **single** transformation that maps triangle **A** onto triangle **B**.

.....
 [3]

(b) Translate triangle **A** by $\begin{pmatrix} -5 \\ -6 \end{pmatrix}$.
 Label the image **C**.

[2]

5	
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4 (a) Write $\frac{3}{8}$ as a percentage.

(a).....% [2]

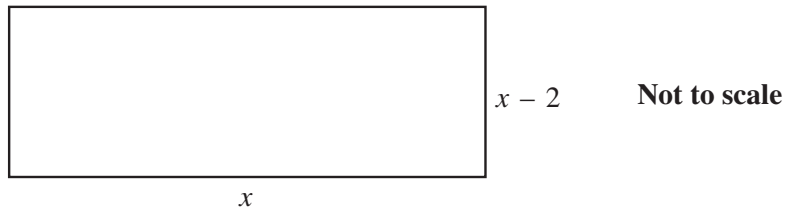
(b) Work out.

$$2.7 - 1.45$$

(b) [1]

3

5 All the lengths in this question are in metres.



The diagram shows a rectangle.

(a) Show that the area, A , of the rectangle is given by $A = x^2 - 2x$.

.....

.....

.....

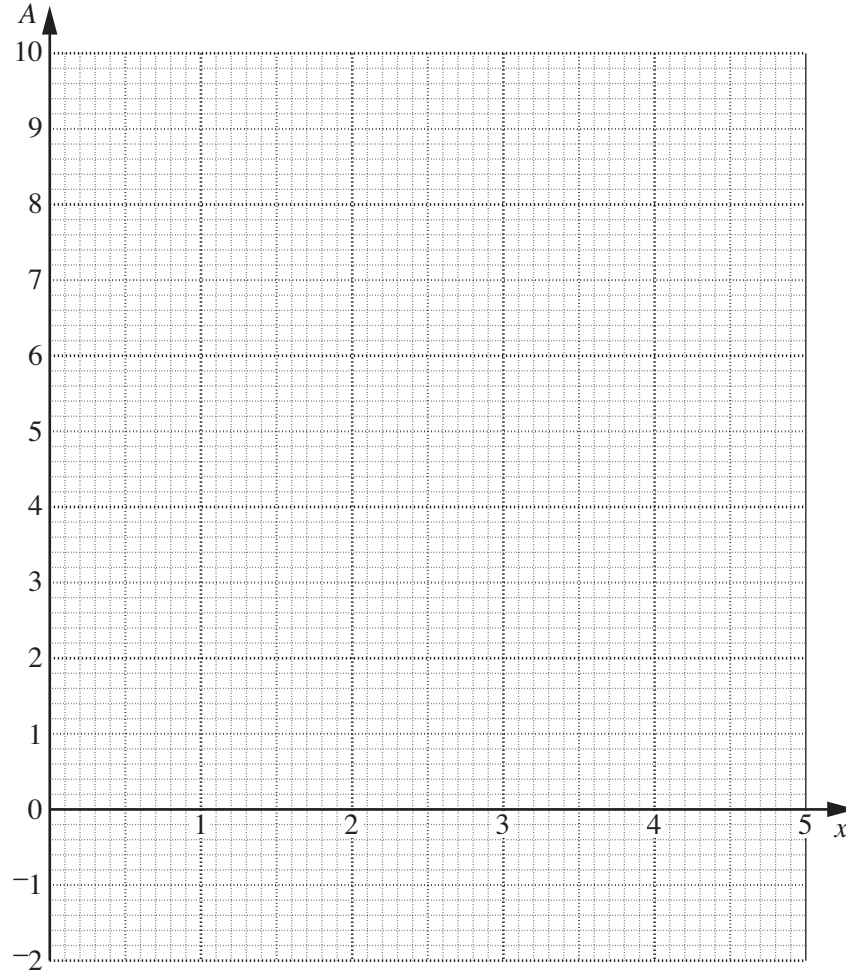
..... [1]

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

x	0	1	2	3	4
A	0	-1	0	3	

[1]

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



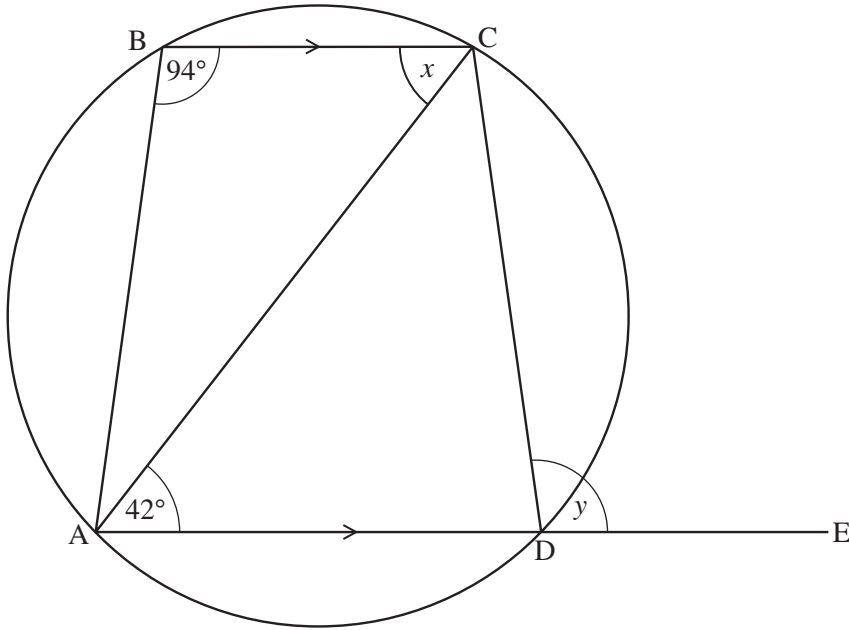
[2]

(d) The area of the rectangle is 2 m^2 .

Use your graph to find the length x .

(d) m [2]

6



Not to scale

In the diagram, ABCD is a cyclic quadrilateral.
ADE is a straight line and BC is parallel to ADE.

- (a) Find angle x .
Give a reason for your answer.

$x = \dots\dots\dots^\circ$ because $\dots\dots\dots$
 $\dots\dots\dots$ [2]

- (b) Find angle y .
Give a reason for each step of your answer.

$y = \dots\dots\dots^\circ$ because $\dots\dots\dots$
 $\dots\dots\dots$
 $\dots\dots\dots$ [3]

- (c) Is AC a diameter of the circle?
Give a reason for your answer.

$\dots\dots\dots$ because $\dots\dots\dots$
 $\dots\dots\dots$ [1]

6

7 (a) Write 45 as the product of its prime factors.

(a)..... [2]

(b) Find the highest common factor (HCF) of 45 and 75.

(b) [2]

4

8 Factorise.

(a) $5a + 10$

(a)..... [1]

(b) $x^2 - 8x + 15$

(b) [2]

3

9 (a) Solve.

$$3x - 4 = x + 1$$

(a)..... [3]

(b) Solve, algebraically, these simultaneous equations.

$$\begin{aligned}2x + y &= 2 \\ 3x + 2y &= 5\end{aligned}$$

(b) $x =$

$y =$ [3]

6

10 (a) Write 2.7×10^5 as an ordinary number.

(a)..... [1]

(b) Work out.

(i) $\frac{3 \times 10^7}{2 \times 10^5}$

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

(ii) $1\frac{3}{4} \div 2\frac{4}{5}$

Give your answer as a fraction in its lowest terms.

(ii) [3]

6

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