Oxford Cambridge and RSA Examinations

General Certificate of Secondary Education

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

INTERMEDIATE TIER TERMINAL PAPER – SECTION A

Specimen Paper 2003

Candidates answer on the question paper.

Additional materials:

Tracing paper (optional)
Geometrical instruments
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

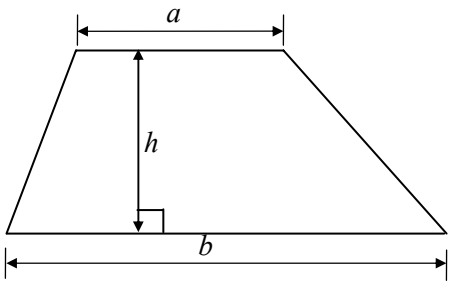
- The number of marks is given in brackets [ ] at the end of each question or part question.
- The total mark available for this section is 50.

For Examiner's use only	
Section A	
Section B	
Total	

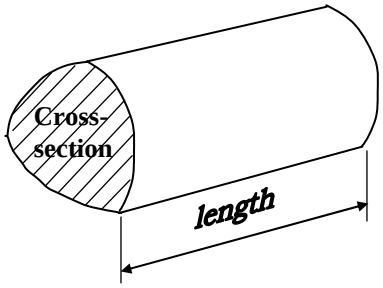
WARNING
You are not allowed to use a calculator in Section A of this paper.

FORMULA SHEET: INTERMEDIATE TIER

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



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



1 Farida is looking for a car to buy.
The car she likes is priced at £5600.
The hire purchase terms are

Deposit $\frac{1}{4}$ of the purchase price
PLUS
36 monthly instalments of £175·50.

Calculate how much will she pay altogether for the car on hire purchase.

£ _____ [5]

5

2 Solve these equations.

(a) $4x + 1 = 13$

(a) $x =$ _____ [1]

(b) $5x - 2 = 3x + 9$

(b) $x =$ _____ [2]

3

3 **(a)** Mark drives 34 890 miles in a year.
He wants to know roughly how many miles this is per week.

Write down a calculation Mark could do in his head to **estimate** how many miles he drives each week.

(a) _____ = _____ miles [3]

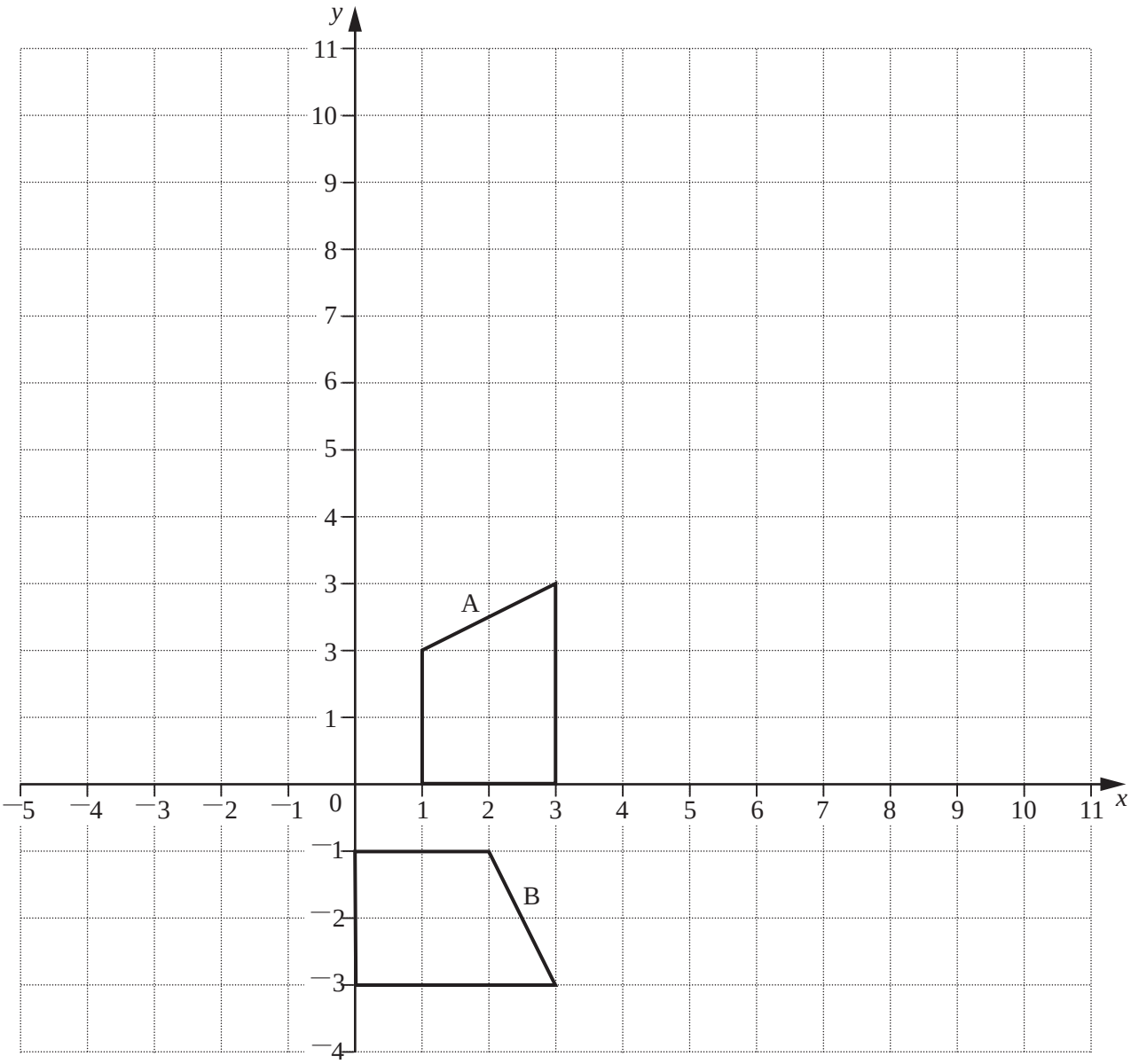
(b) On Thursday Mark drives 132 km in 1 hour 30 minutes.

Calculate his average speed in kilometres per hour.

(b) _____ km/h [3]

6

4



The diagram shows shapes A and B.

(a) Draw the reflection of shape A in the *y* axis.
Label this shape C. [1]

(b) Describe fully the **single** transformation that maps shape A onto shape B.

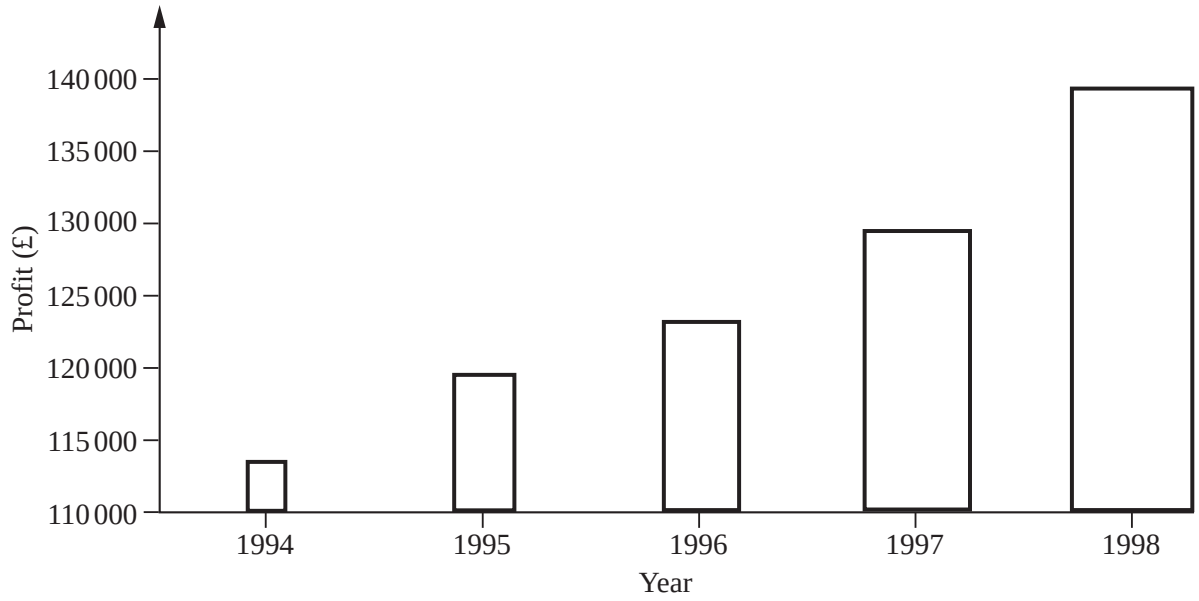
_____

_____ [3]

(c) Draw the enlargement of shape A with centre (0, 0) and scale factor 3.
Label this shape D. [3]

7

5 For this diagram, give two reasons why it may be misleading.



1 _____

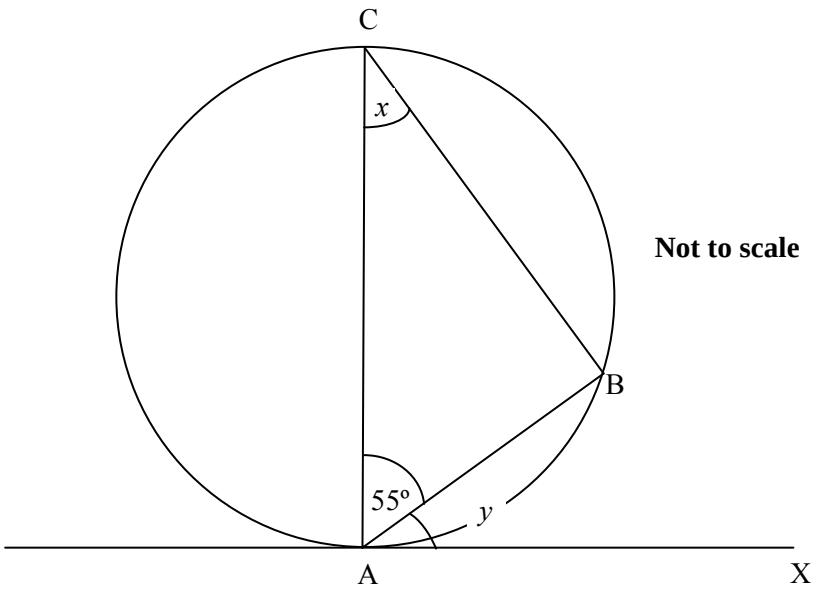
_____ [1]

2 _____

_____ [1]

2

6



In the diagram, O is the centre of circle ABC.
AX is a tangent to the circle at A.

(a) Work out angle x.

(a) _____ [2]

(b) Explain why $y = 35^{\circ}$.

_____

_____ [1]

3

7 In this question, $a = 5$, $b = -4$, $c = -3$.

Work out the values of

(a) $3a + 2b$,

(a) _____ [2]

(b) $\frac{3a^2+c^2}{b+c}$.

(b) _____ [2]

4

8 **(a)** A machine produces pieces of wood.

The length of each piece of wood measures 34 mm, correct to the nearest millimetre.

Between what limits does the actual length lie?

(a) The length is between _____ mm and _____ mm [2]

(b) Three of these pieces of wood are put together to form a triangle.

What is the greatest possible perimeter of the triangle?

(b) _____ mm [1]

3

9 **(a)** Multiply out and simplify

$$3(2x + 1) - 2(x - 1).$$

(a) _____ [2]

(b) Rearrange the formula

$$A = 2\pi rh + \pi r^2$$

to make h the subject.

(b) $h =$ _____ [2]

4

10 The total rainfall figures, in millimetres, for the past 7 years in Egypt are shown below.

27 24 31 30 28 15 29

Find the five yearly moving averages.

_____, _____, _____ [3]

3

11 There are two sets of traffic lights on Barry's journey home.

The probability that he is stopped at the first set is 0·4.

The probability that he is stopped at the second set is 0·3.

These probabilities may be assumed to be independent.

What is the probability that Barry is stopped at only one set of lights?

_____ [4]

4

12 **(a)** Factorise $x^2y + 4xy$.

(a) _____ [1]

(b) Simplify $\frac{4a^4b^3}{6ab^2}$.

(b) _____ [2]

(c) Solve the equation $x^2 + 7x + 12 = 0$.

(c) x = _____ [3]

6