



Rewarding Learning

ADVANCED SUBSIDIARY (AS)
General Certificate of Education
2019

Centre Number

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Candidate Number

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Mathematics

Assessment Unit C1

assessing

Module C1:

AS Core Mathematics 1



[AMC11]

AMC11

MONDAY 13 MAY, AFTERNOON

TIME

1 hour 30 minutes.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

You must answer **all eight** questions in the spaces provided.

Do not write outside the boxed area on each page or on blank pages.

Complete in black ink only. **Do not write with a gel pen.**

Questions which require drawing or sketching should be completed using an H.B. pencil.

All working should be clearly shown in the spaces provided. Marks may be awarded for partially correct solutions. **Answers without working may not gain full credit.**

Answers should be given to three significant figures unless otherwise stated.

You are not permitted to use any calculating aid in this paper.

INFORMATION FOR CANDIDATES

The total mark for this paper is 75

Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

A copy of the **Mathematical Formulae and Tables booklet** is provided.

Throughout the paper the logarithmic notation used is $\ln z$ where it is noted that $\ln z \equiv \log_e z$

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24AMC1101

(b) (i) Write $2x^2 + 8x - 3$ in the form $2[(x + p)^2 - q]$ [2]

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(ii) Hence state the minimum value of $2x^2 + 8x - 3$ and the value of x at which it occurs. [2]

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2 Fig. 1 below shows a sketch of the graph of the function $y = f(x)$.

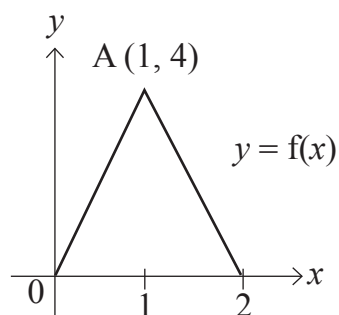


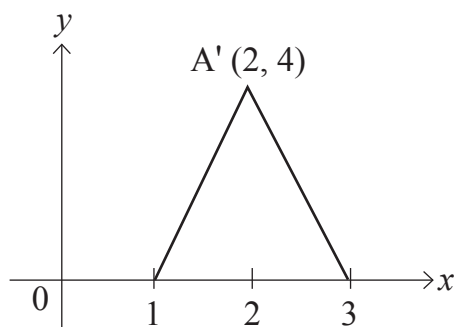
Fig. 1

Point A has coordinates (1, 4).

Each sketch below shows a single transformation of the function $y = f(x)$.

For each sketch, use function notation to describe the transformation shown.

(i)



[2]

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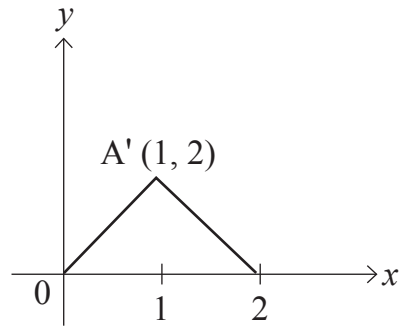
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(ii)



[2]

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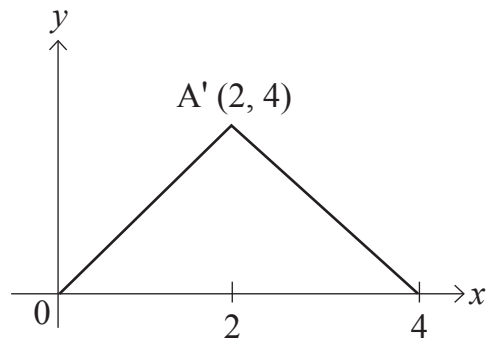
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(iii)



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(b) Solve

$$36 \times 6^x = \left(\frac{1}{6}\right)^{x-3} \quad [5]$$

A series of horizontal dotted lines for writing the solution to the equation.

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Handwriting practice area with 20 horizontal dotted lines.



(b) Fig. 2 below shows a sketch of a curve and a straight line.

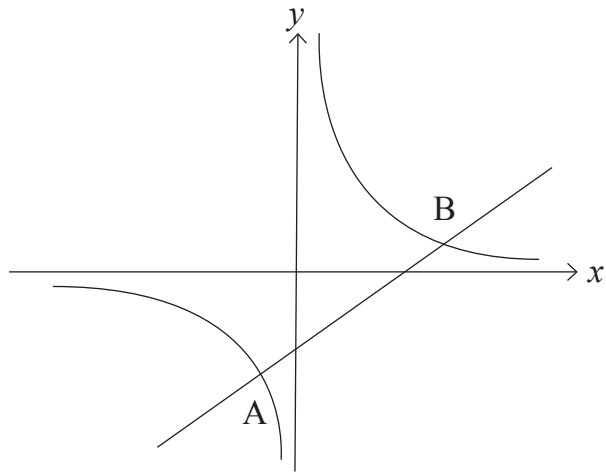


Fig. 2

The straight line has equation $y = x - 2$

The curve has equation $y = \frac{3}{x}$

They intersect at the points A and B.

- (i) Find the coordinates of A and B. [5]

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6 Fig. 3 below shows a sketch of a wooden doorstop.

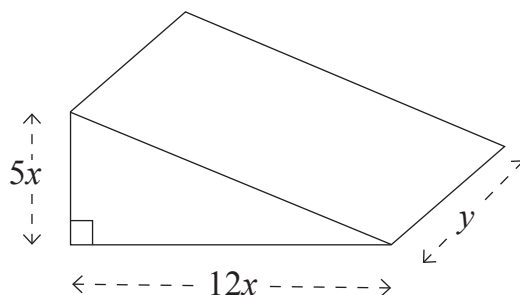


Fig. 3

The doorstop is a right-angled triangular prism with base length $12x$ cm, perpendicular height $5x$ cm and depth y cm.

The volume of the doorstop is 480 cm^3

(i) Find an expression for y in terms of x .

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For Examiner's use only	
Question Number	Marks
1	
2	
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Total Marks	
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Examiner Number

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