



Rewarding Learning

ADVANCED
General Certificate of Education
2019

Centre Number

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Candidate Number

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Mathematics

Assessment Unit C3

assessing

Module C3:

Core Mathematics 3



[AMC31]

AMC31

THURSDAY 30 MAY, MORNING

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 permitted to use a graphic or scientific calculator 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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Handwriting practice area with 20 horizontal dotted lines.

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20AMC3103

- 4 (a) The graph of the function $y = f(x)$ is sketched in **Fig. 2** below.

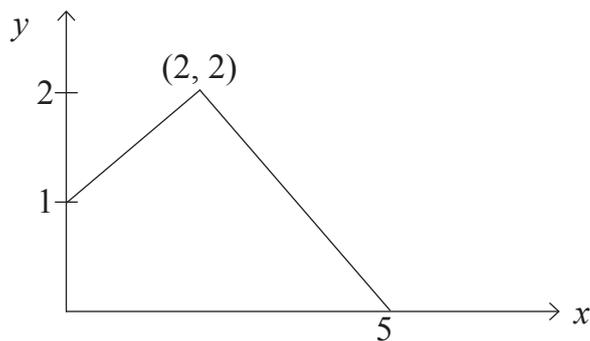
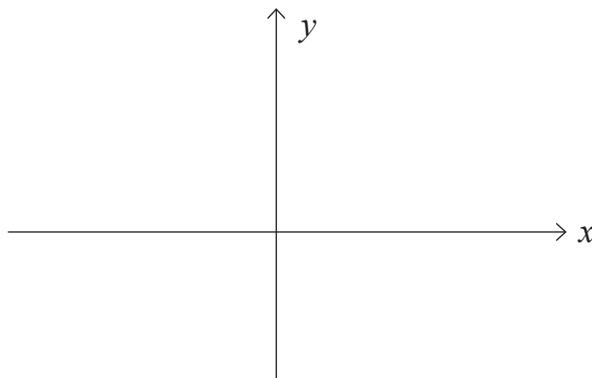


Fig. 2

On the axes below, sketch the graphs of

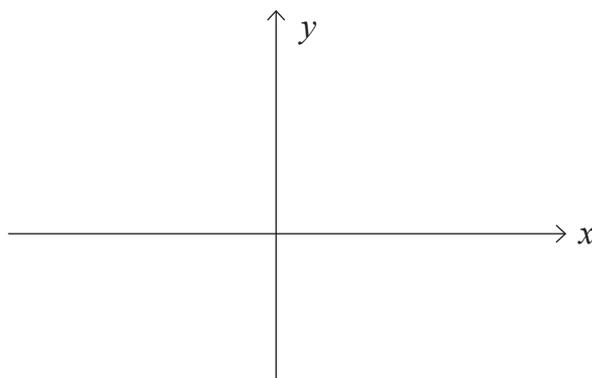
(i) $y = 4 + f(-x)$

[2]



(ii) $y = 3f(x - 1)$

[2]



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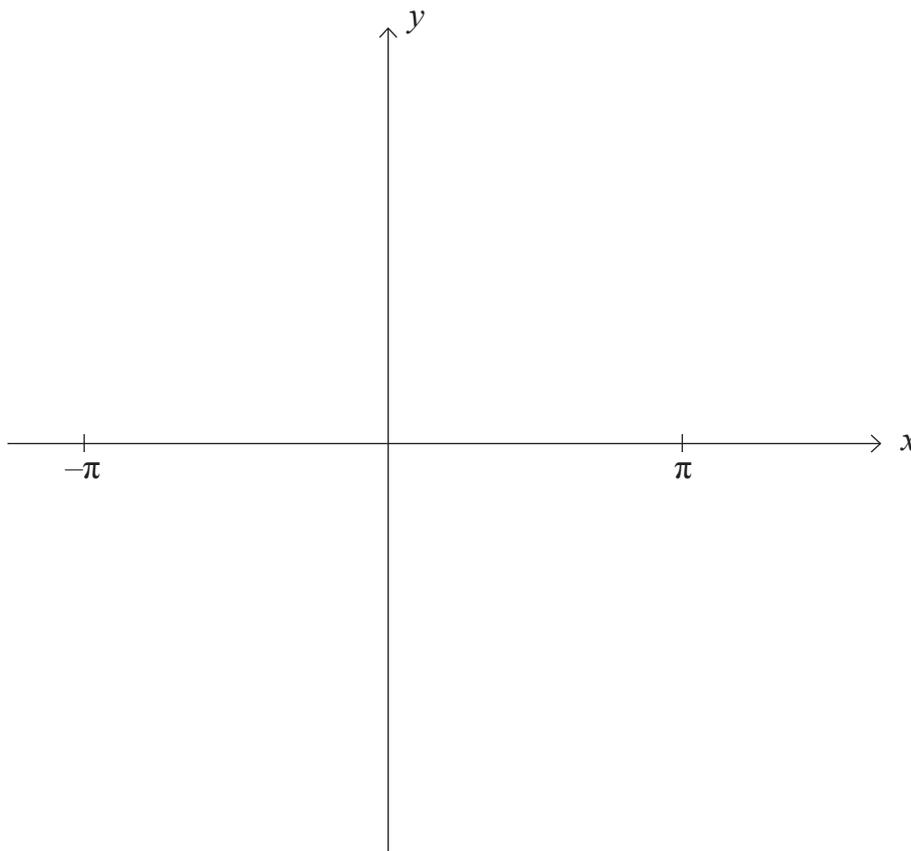


20AMC3109

(ii) State the equation of the asymptote to this curve. [1]

.....
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(b) On the axes below, sketch the graph of $y = \operatorname{cosec} x$ for $-\pi \leq x \leq \pi$ [2]



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DO NOT WRITE ON THIS PAGE

| For Examiner's use only | |
|-------------------------|-------|
| Question Number | Marks |
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |

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| Total Marks | |
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Examiner Number

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