



Rewarding Learning

ADVANCED
General Certificate of Education
2018

Centre Number

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Candidate Number

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Mathematics

Assessment Unit C3

assessing

Module C3:

Core Mathematics 3

MV18

[AMC31]

THURSDAY 31 MAY, MORNING

Time

1 hour 30 minutes, plus your additional time allowance.

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 on blank pages.

Complete in **black ink** only. 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 at the end of each question 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 $\ln z \equiv \log_e z$

(b) Write in partial fractions

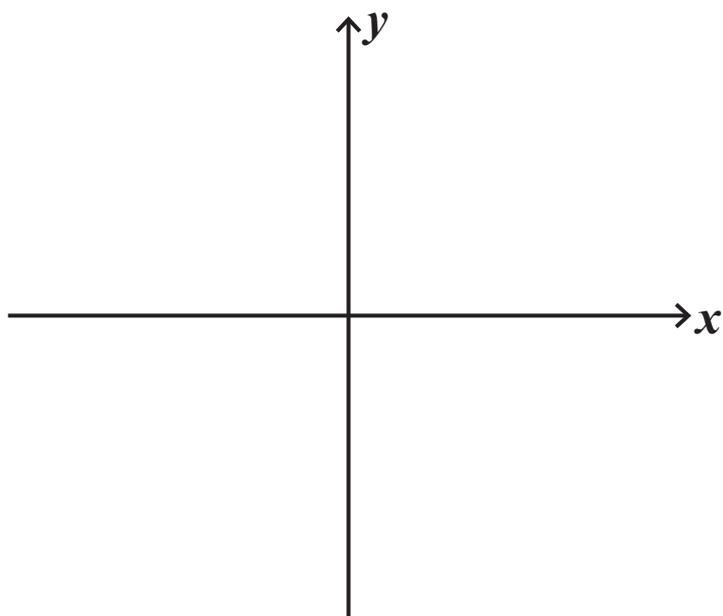
$$\frac{7x + 18}{x^2 + 3x - 4} \quad [5 \text{ marks}]$$

- (ii) Given that at $t = 0$, $N_0 = 3000$, find the number of bacteria that will be present after two minutes.
[1 mark]

(ii) Hence find the exact equation of the normal to the curve at the point where

$$x = \frac{\pi}{3} \quad [4 \text{ marks}]$$

(b) On the axes below sketch the graph of $y = \ln |x - 1|$
[3 marks]



THIS IS THE END OF THE QUESTION PAPER

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

Examiner Number

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