

Cambridge Assessment International Education

Cambridge International Advanced Subsidiary Level

CANDIDATE NAME										
CENTRE NUMBER					CANDIE NUMBE					
MATHEMATICS	3								97	09/23
Paper 2 Pure M	1athemat	ics 2 (P2)				0	ctobe	r/Nov	embe	r 201 9
							1	hour	15 mi	nutes
Candidates ans	wer on th	ne Question	n Paper.							
Additional Mater	rials:	List of Fo	rmulae (MF9)						

READ THESE INSTRUCTIONS FIRST

Write your centre number, candidate number and name in the spaces at the top of this page.

Write in dark blue or black pen.

You may use an HB pencil for any diagrams or graphs.

Do not use staples, paper clips, glue or correction fluid.

DO NOT WRITE IN ANY BARCODES.

Answer **all** the questions in the space provided. If additional space is required, you should use the lined page at the end of this booklet. The question number(s) must be clearly shown.

Give non-exact numerical answers correct to 3 significant figures, or 1 decimal place in the case of angles in degrees, unless a different level of accuracy is specified in the question.

The use of an electronic calculator is expected, where appropriate.

You are reminded of the need for clear presentation in your answers.

At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [] at the end of each question or part question.

The total number of marks for this paper is 50.

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



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(ii)	Hence find the largest integer n satisfying the inequality $ 2 \ln n - 7 < 2 \ln n - 9 $.	
(ii)	Hence find the largest integer n satisfying the inequality $ 2 \ln n - 7 < 2 \ln n - 9 $.	
(ii)		

Find the exact value of $\int_{1}^{2} (2e^{2x} - 1)^{2} dx$. Show all necessary working.	
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	curve has equation y =	$1 + \ln x$	 dient of the cur	ve at the point?	or winen y
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4	The po	lynomial	p(x)	is	defined	by

$$p(x) = ax^3 + ax^2 - 15x - 18,$$

where a is a constant. It is given that (x-2) is a factor of p(x).

(i)	Find the value of a .	[2]
(ii)	Using this value of a , factorise $p(x)$ completely.	[3]
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(iii)	Hence solve the equation $p(e^{\sqrt{y}}) = 0$, giving the answer correct to 2 significant figures.	[2]
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Show that <i>a</i>	$= \sqrt[3]{(3-2\sin 2a)}$	$a-\cos a$).				
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-	on in part (i), show			
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6	(a)	Showing all	necessary	working,	solve th	ne equation
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for $0^{\circ} < \alpha < 90^{\circ}$.	[5]
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(b)	Showing all necessary working, solve the equation
	$\sin(\beta + 20^\circ) + \sin(\beta - 20^\circ) = 6\cos\beta$
	for $0^{\circ} < \beta < 90^{\circ}$. [4]

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Show that the curve has no stationary points.
Find the <i>x</i> -coordinate of each of the points on the curve at which the tangent is parallel to t <i>y</i> -axis.

Additional Page

If you use the following lined page to complete the answer(s) to any question(s), the question number(s) must be clearly shown.			

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