

# Wednesday 22 June 2022 – Afternoon

## A Level Further Mathematics B (MEI)

Y434/01 Numerical Methods

**Printed Answer Booklet** 

Time allowed: 1 hour 15 minutes

#### You must have:

- Question Paper Y434/01 (inside this document)
- the Formulae Booklet for Further Mathematics B (MEI)
- · a scientific or graphical calculator



Please write clea	arly in	black	ink.	Do no	ot writ	te in the barcodes.		
Centre number						Candidate number		
First name(s)								
Last name								

### **INSTRUCTIONS**

- Use black ink. You can use an HB pencil, but only for graphs and diagrams.
- Write your answer to each question in the space provided in the Printed Answer Booklet. If you need extra space use the lined pages at the end of the Printed Answer Booklet. The question numbers must be clearly shown.
- · Answer all the questions.
- Where appropriate, your answer should be supported with working. Marks might be given for using a correct method, even if your answer is wrong.
- Give your final answers to a degree of accuracy that is appropriate to the context.

## **INFORMATION**

This document has 12 pages.

## **ADVICE**

· Read each question carefully before you start your answer.



1(a)	
1(b)	
1(c)	

2(a)	
2(b)	
2()	
2(c)	
- (3)	
2(d)	

3(a)	
3(b)	
	$x_5 =$
	$x_6 =$
3(c)	
3(d)	
3(e)	

4(a)	
4(b)	
4(c)(i)	
4(c)(ii)	
4(d)	

5(a)						
5(b)						
		F	G	Н	I	
	3	n	$M_n$	$T_n$	$S_{2n}$	
	4	1	0.2436699	0.1479020	·	
	5	2	0.2306967			
5(c)						
3(c)						

6(a)	

6(b)	14		$\mathcal{X}_r$	difference	ratio
	r		<u>r</u>	difference	
	0	0			
	1				
	2				
	3				
	4			-0.000192	
	5			$-1.99 \times 10^{-7}$	0.00103
	6			$-1.82 \times 10^{-10}$	0.000914
-					
_					
-					
-					
-					
6(c)					
_					
6(c) 6(d)					
_					
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7(a)		t	M	$\Delta M$	$\Delta^2 M$	$\Delta^3 M$	
		0	88.3				
		10	80.05				
		20	78.7				
		30	78.85				
7(b)							
7(0)							
1	1						

7(c)							
_							
7(d)		M	$\Delta M$	$\Delta^2 M$	$\Delta^3 M$	$\Delta^4 M$	
	0	88.3	ΔΙΝΙ	Δ M	ΔWI	ΔWI	
	10	80.05					
	20	78.7					_
	30	78.85					
	40	78.7					
	50	80.05					
-	30	80.03					
_							
7(e)							
-							
_							
				(answe	r space cont	inued on ne	xt page)

7(e)	(continued)
7(f)	

## ADDITIONAL ANSWER SPACE

If additional space is required, you should use the following lined page(s). The question number(s) must be clearly shown in the margin(s).



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