

Please write clearly in	i block capitals.
Centre number	Candidate number
Surname	
Forename(s)	
Candidate signature	L declare this is my own work

GCSE MATHEMATICS



Morning Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:

- mathematical instruments
- the Formulae Sheet (enclosed).

You must **not** use a calculator.

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer all questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.

Advice

In all calculations, show clearly how you work out your answer.



For Examiner's Use		
Pages	Mark	
2–3		
4–5		
6–7		
8–9		
10–11		
12–13		
14–15		
16–17		
18–19		
20–21		
22–23		
TOTAL		





3	Each number in a list is increased by	10		
	Tick one box for each statement.			[3 marks]
		True	False	Cannot tell
	The mode is increased by 10			
	The median is increased by 10			
	The range is increased by 10			
4 (a)	Write the missing term in the geometr	ric progression	256	[1 mark]
4 (b)	A Fibonacci-type sequence begins			
	The sequence is continued by adding	, the previous t	vo terms	
	Work out the next two terms.		wo terms.	[2 marks]
	Answer	and		







6	Work out $1\frac{1}{5} - \frac{3}{10}$		outside the box
	Give your answer as a fraction.	2 marks]	
	Answer		
	Turn over for the next question		
			5







8	(a)	In this part, assume t	hat each person works at the same rate.	Do not write outside the box
-	X -7	10 people can compl	ete a job in 9 hours.	
		If 15 people work on	the same ich, how many hours will it take to complete the ich?	
		II 10 people work on	ine same job, now many nours will it take to complete the job!	
				-
				_
				_
				-
		Answe	r hours	
8	(b)	In fact, of the 15 peo	ble	
		6 work at a slo	ower rate	
		9 work at a fas	ster rate.	
		What does this mean	about the number of hours it will take to complete the job?	
		Tick one box.	14	
			[1 mark	1
			It is greater than the answer to (a)	
			It is the same as the answer to (a)	
			It is less than the answer to (a)	
			It is not possible to say	
				7







7



				Do not write
12 (a)	Convert	27	to a recurring decimal	box
12 (a)	Convent	11		
			[2 marks]	
			Answer	
40 (h)	Convert	0.45	to a fraction	
12 (D)	Convert	0.15	to a fraction.	
			[•	
			_	
			Answer	
				δ



			Do not write outside the
13 (a)	By rounding each number to one significant figure,		box
	estimate the value of $\frac{\sqrt{401 + 1.9^3}}{50.7^9}$		
	cos 58.7°		
	You must show your working.	[3 marks]	
		[o marko]	
	Answer		











15 (a)	Solve the inequality $20 - 5x \leq 30$	[3 marks]	Do not write outside the box
	Answer		
15 (b)	Represent $x > -1$ on the number line.	[1 mark]	
	-5 -4 -3 -2 -1 0 1 2 3 4 5 6 x		
16	When <i>w</i> is truncated the answer is 8 Sacha writes the error interval due to truncation as $7.5 \le w \le 8.5$		
	Give a reason why Sacha is wrong and state the correct error interval for w .	[2 marks]	
	Correct error interval $\leq w <$		9



17 (a)	A circle has centre (0, 0) and circumference 36π		Do not write outside the box
	Work out the equation of the circle.	[2 marks]	
	Answer		
47 (h)	Deint (here recarding the $(45, 0)$ and residt ((here counting the $(20, 5)$		
17 (D)	Point J has coordinates $(15, 0)$ and point K has coordinates $(30, -5)$ Work out the equation of the straight line through J and K.		
		[4 marks]	
	Answer		



18 (a)	Express $x^2 + 8x - 5$ in the form $(x + a)^2 - b$ where <i>a</i> and <i>b</i> are integer	rs.
		[2 marks]
	Answer	
18 (b)	A curve has the equation $y = (x - 7)^2 + 8$	
	Write down the coordinates of the turning point of the curve.	[2 marks]
	Answer (,)	
	Turn over for the next question	
		10
		Turn over 🕨



19 (a)	Expand and simplify fully (x + 2)(2x + 3)(3x + 4)	[3 marks]	Do not write outside the box
19 (b)	Use your answer from part (a) to work out 102 × 203 × 304	[2 marks]	



20	(2)	Show that $\sqrt{363}$ simplifies to an integer	Do not write outside the box
20	(a)	$\frac{1}{\sqrt{3}}$ (2 marks)	
20	(b)	Rationalise the denominator and simplify $\frac{20}{\sqrt{5}}$	
		√3 [2 marks]	
		Answer	
		Turn over for the next question	
			9























Question number	Additional page, if required. Write the question numbers in the left-hand margin.



 Do not write outside the
box

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