Surname	Centre Number	Candidate Number
First name(s)		0

GCSE



3300U40-1

A20-3300U40-1

WEDNESDAY, 11 NOVEMBER 2020 - MORNING

MATHEMATICS UNIT 2: CALCULATOR-ALLOWED INTERMEDIATE TIER

1 hour 45 minutes

ADDITIONAL MATERIALS	For Examiner's use only			
A calculator will be required for this examination. A ruler, protractor and a pair of compasses may be required.	Question	Maximum Mark	Mark Awarded	
	1.	7		
INSTRUCTIONS TO CANDIDATES	2.	4		
Use black ink or black ball-point pen. Do not use gel pen or correction fluid. You may use a pencil for graphs and diagrams only.	3.	4		
	4.	4		
Write your name, centre number and candidate number in	5.	4		
the spaces at the top of this page.	6.	6		
Answer all the questions in the spaces provided. If you run out of space, use the additional page at the back of the booklet. Question numbers must be given for all work written on the additional page.	7.	3		
	8.	2		
Take π as 3.14 or use the π button on your calculator.	9.	7		
	10.	4		
INFORMATION FOR CANDIDATES	11.	5		
You should give details of your method of solution when	12.	4		
appropriate. Unless stated, diagrams are not drawn to scale. Scale drawing solutions will not be acceptable where you are asked to calculate. The number of marks is given in brackets at the end of each guestion or part-guestion.	13.	2		
	14.	4		
	15.	5		
	16.	2		
n question 9, the assessment will take into account the	17.	3		
quality of your linguistic and mathematical organisation, communication and accuracy in writing.	18.	4		
	19.	6		
	Total	80		



	3	Examin			
(a) (i) 	(i) Evaluate $\frac{1}{0.25^2}$. $(0.25)^2 = \frac{1}{16}$, $\frac{1}{16} = 16$.				
(ii)	Evaluate $5.4^3 \times 3.7^2$. Give your answer correct to the nearest 10. $5.4^3 = 157.464$, $3.7^2 = 13.69$.	[2]			
(b) Find	157464 × 13.6922160 162% of 7.8. 3.62 × 7.8 = 4.836	[2]			
(i)	Which one of the following numbers is a multiple of 19? Circle your answer. 91 151 199 219 247	[1]			
(ii)	Which one of the following numbers is a cube number? Circle your answer. 1197 2197 3197 4197 5197	[1]			
03	© WJEC CBAC Ltd. (3300U40-1)	Turn over.			

(a)	Write down th	e next two 39	numbers in the for 28 17	bllowing sequence. 6	-5	[2]
	~ب (ب			 U	
(b)	Use the form	ula <i>x</i> = 4 <i>a</i>	a + 3b to find the	value of x when a =	= 7·2 and <i>b</i> = -4·6.	[2]
	2	<u>1</u> 24,	~7.2-5	3×4.6=	15.	
dent	ical rods can b	e placed e	end to end, as sho	wn below.		
Each	rod is 17-5 cm	long.				
	17:5 0		17.5 cm	17.5 cm		
ι ζ	tm:40	ou Cm.	400 17-5	$\frac{2}{5} = 22 \cdot 8$	357. <u>-</u>	· [4]
	Cannol	- f:1	- 23, <	io must i	ourd do	wn.
						·····-
•••••		Number	r of rods = 2	2		



III I**BB**I







(a) Solve $5(2x + 3) = 20$.	[3]
10x+15 = 20 2-15 10x = 5 2 = 10 $x = \frac{1}{2}$	
(b) Factorise $7a + 21$. = $7(a+3)$	[1]
(c) A number machine is shown below.	
INPUT SUBTRACT MULTIPLY 3 BY 5 OUTPUT	
Write down an expression for the OUTPUT when the INPUT is <i>n</i> .	[2]
$5 \times (n-3)$	
	(a) Solve $S(2x + 3) = 20$. $10x + 15 = 20$ $2 - 15$ $10x = 5$ $2 \div 10$ $x = -\frac{1}{2}$ (b) Factorise $7a + 21$. = 7(a + 3) (c) A number machine is shown below. $INPUT \qquad \qquad$



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Examiner only 10. (a) Caryl has two fair dice. Dice A is a cube. It shows the numbers 1 to 6. Dice B is a tetrahedron. It shows the numbers 1 to 4. Caryl throws both dice. What is the probability that she throws a 5 on dice A and a 3 on dice B? [2] (b) Asif has a biased four-sided dice. The dice shows the numbers 10, 20, 30 and 40. Asif throws the dice once. The table below gives the probability of obtaining each number. Number 10 20 30 40 1 1 1 1 Probability 2 5 5 10 What is the probability that Asif throws a 30 or a 40? [2] 5 0



13

A solution of the equation	
	$x^3 - 5x - 350 = 0$
ies between 7.2 and 7.3.	
Use the method of trial and You must show all your wo	d improvement to find this solution correct to 2 decimal places. orking. [4
\propto	$\frac{x^2 - 3x - 356}{2}$
7.3	2.517
7.29	0.9704 & Between @7.29
7.28	-0.571 Jand 7.28.
7 79 6	01000 1 1 7 700
1.05	U1100 ->Less than 7.203
1.240	-1.341 (Inbetween t. L7)
f.284	0.045 Jand 7.284
Thous it	rounds to 7.28 (to two dp).



15. In the diagram below, AB, BC and CD are three sides of a regular polygon. The polygon has 15 sides. The length of each side is 8 cm.	Examiner only
The exterior angle of the polygon is x° . BRC is a right-angled triangle.	
8 cm C	
A B R	
Diagram not drawn to scale	
Calculate the length of BR. $T_{a} = \frac{15}{2} \times 18 = 156^{\circ}$	[5]
$\frac{100}{15}$	
$x = 180^{\circ} - 156^{\circ} = 24^{\circ}$	
Level of BR - 8, Es(24°)	
BR = 7.31 cm (2dp).	



Examiner only **16.** Calculate the value of $(3.2 \times 10^7) \times (8.3 \times 10^{-2})$. Give your answer in standard form. [2] 3.2×107 × 8.3×10-2 = 3.2×8.3×105 26.56 × 105 -×IO 17. The lengths of the sides of a rectangle are given as 24 cm and 15 cm. Each measurement is given correct to the nearest centimetre. Calculate the difference between the greatest possible perimeter of the rectangle and the least [3] possible perimeter of the rectangle. 5+2+15-5 perimeter = 2×21 5+2×14.5 (23-= oerin SCM

18. Solve the following simultaneous equations using an algebraic (not graphical) method. Examiner only 3x - 2y = 147x + 3y = 25You must show all your working. [4] 6





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