Surname

Centre Number

Other Names

GCSE



3310U50-1

A17-3310U50-1

MATHEMATICS – NUMERACY UNIT 1: NON-CALCULATOR HIGHER TIER

MONDAY, 6 NOVEMBER 2017 – MORNING

1 hour 45 minutes

ADDITIONAL MATERIALS

The use of a calculator is not permitted in this examination. A ruler, a protractor and a pair of compasses may be required.

INSTRUCTIONS TO CANDIDATES

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.

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

Answer all the questions in the spaces provided.

If you run out of space, use the continuation page at the back of the booklet. Question numbers must be given for all work written on the continuation page.

Take π as 3.14.

INFORMATION FOR CANDIDATES

You should give details of your method of solution when 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 question or part-question.

In question 4(b), the assessment will take into account the quality of your linguistic and mathematical organisation, communication and accuracy in writing.



For Examiner's use only				
Question	Maximum Mark	Mark Awarded		
1.	7			
2.	6			
3.	9			
4.	12			
5.	5			
6.	4			
7.	8			
8.	8			
9.	7			
10.	6			
11.	8			
Total	80			



per annum as a decimal and n is the number of compounding periods per annum.



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		 categories: pupils who cycle to school, pupils who would like to cycle to school, and other pupils? 			[1]
		School: Year Gro	up:		
	(ii)	Circle either TRUE or FALSE for each of the following	ng statements	6.	[3]
There schoc	e are c ol thar	definitely more pupils in Ysgol Fron Isa who cycle to n in Ysgol Caewen.	TRUE	FALSE	
Both s	schoo ng to s	ols have pupils in each year group with no interest in school.	TRUE	FALSE	
The q	questio	ons asked were biased.	TRUE	FALSE	
Appro	oximat to sch	tely 20% of the pupils surveyed in Ysgol Caewen nool.	TRUE	FALSE	
It is m situate	nore li ed in a	kely that it is Ysgol Fron Isa that is the small school	TRUE	FALSE	
(b)	In Ja In Ja (i)	inuary 2011, there were 1200 miles of National Cycle N anuary 2016, there were 1400 miles of NCN routes in V If the number of miles of NCN routes in Wales were same number of miles per year, how many miles of January 2018?	letwork (NCN Wales. to continue t cycle routes	I) routes in W to increase b would there	ales. y the be in [2]
(b)	In Ja In Ja (i)	Inuary 2011, there were 1200 miles of National Cycle N Inuary 2016, there were 1400 miles of NCN routes in V If the number of miles of NCN routes in Wales were same number of miles per year, how many miles of January 2018?	letwork (NCN Wales. to continue t cycle routes	I) routes in W to increase b would there	ales. y the be in [2]
(b)	In Ja In Ja (i)	Inuary 2011, there were 1200 miles of National Cycle Nanuary 2016, there were 1400 miles of NCN routes in Vales were same number of miles per year, how many miles of January 2018?	letwork (NCN Wales. to continue f cycle routes	I) routes in W to increase b would there	ales. y the be in [2]
(b)	In Ja In Ja (i)	Inuary 2011, there were 1200 miles of National Cycle Nanuary 2016, there were 1400 miles of NCN routes in Vales were same number of miles per year, how many miles of January 2018?	letwork (NCN Wales. to continue f cycle routes	I) routes in W to increase b would there e number of r	ales. y the be in [2] miles [1]
(b)	In Ja In Ja (i) 	Inuary 2011, there were 1200 miles of National Cycle N Inuary 2016, there were 1400 miles of NCN routes in Vales were same number of miles per year, how many miles of January 2018? Why is your answer in (i) unlikely to be an accurate e of NCN routes in Wales in January 2018?	letwork (NCN Wales. to continue f cycle routes	I) routes in W to increase b would there e number of r	ales. y the be in [2] miles [1]



Examiner only

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(b)	Wha kenn	t is the increase in the daily running costs for each additional dog that is kept in the els?
(c)	(i)	Freda also runs a dog kennels. The cost of keeping 20 dogs in her kennels for one day is £130. She knows that as the number of dogs increases, the overall cost increases at the same rate as in William's kennels.
		Display this information on the graph paper opposite. [2]
	(ii)	Find the cost of keeping 30 dogs for one day in Freda's kennels. [1]





(a)	(i)	Use Meirion's cumulative frequency diagram to find the median and interquartile range of the times he spends cleaning windows for each of his customers. [3]	Examiner only
		Median minutes	
	•••••	Interquartile range minutes	
	(ii) 	Meirion looks back at his raw data. He finds that the median is actually 17 minutes 30 seconds. Why is there a difference between the median from his cumulative frequency diagram and the actual median from his raw data? [1]	
<i>(</i> b)	Meir	ion is looking at the time it took to clean individual customers' windows	10 U 5 0 1
	Find	the number of customers whose windows took between 10 and 15 minutes to clean. [2]	Ϋ́ Ϋ́
(C)	Meir less Is M	ion thinks that for approximately 80% of his customers, he cleaned their windows in than 20 minutes. eirion correct?	
	You	must show all your working. [3]	



03 Stryd Br aesgwyn	ryntor			
Peri	od	Previous meter reading	Present meter reading	Number of units of electricity used
May, Ju July 2	ne and 2017	13450	13900	450
(4	Charge for 50 units at 2	electricity: 20p per unit	£9	90.00
3 m	Standing onths at £7.	charge: 60 per month	£2	22.80
	Total ch	arges:	£1	12.80
	VAT a 5% of £	t 5%: 112.80	£	5.64
		Amount to pay: £1	12.80 + £5.64 = £118.44	ŀ
<i>(a)</i> On 1 Wha Circl	August 20 t is the incr e your answ	17, the charge per uni eased cost per unit of ver.	t for electricity was incre electricity?	eased by 5%. [1]
20.5	p	21p 2	1.5p 22p	22.5p
(b) In th com Meg She •	his part of t munication an wants to knows the t Her meter The charg The stand VAT rema	he question you will and accuracy in writir calculate her next 3- following: reading on 31 Octob reading on 31 Octob	<i>be assessed on the quag.</i> monthly electricity bill. er 2017 was 14400. ity has increased by 5% ased by 20p per month	uality of your organisation, since her last bill. since her last bill.
•				



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Complete each of the following statements. 'Apples from the apple tree have the least median (i) width. The median width of apples recorded for this tree is mm.' [1] 'The range of the widths of apples recorded for the Gala apple tree (ii) is mm.' [1] 'The ______ apple tree has apples with the greatest interquartile range of widths. (iii) The interquartile range of the widths of apples recorded for this tree is mm.' [2] Which tree has a higher proportion of larger apples? You must give a reason for your answer. [1]

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(a)

(b)

Examiner only

After he has taken his share, he calculates that he has 0.83 of the pizza left. Daniel shares what he has left equally between 3 of his friends. Calculate the fraction of the whole pizza that each of these 3 friends will have. Give your answer as a fraction in its lowest terms.	[4]
	ניין
	•••••••

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(c)	Calculate the total number of pupils that were in the group. [2]
1)	Gareth was one of the pupils in the group. He says,
	"The time I took to answer the question was 18 seconds. This means I was in the fastest 50% of the pupils."
	(i) Explain how Gareth's statement could be true. You must use calculations to justify your answer. [3]
	(ii) Explain how Gareth's statement could be false. [1]



	oduces two similar s	and signs	E
A company pro		dau signs.	
-	30 cm	45 cm	
Ē			
Ē			
	Diag	arams not drawn to scale	
(a) The cos	t of the paint needed	for the smaller road sign is £1.60.	[4]
Galoalat			[.]

(-)	 This selling price was calculated from the cost price by: adding a profit of 25%, then adding VAT at 20%. 	
	Calculate the cost price of the smaller road sign. You must show all your working.	[4]
•••••		
•••••		
•••••		
•••••		
•••••		
•••••		





b)	Use the trapezium rule to calculate an estimate of the distance Catrin travelled in the 5 seconds of the race. Use Catrin's velocities at times $t = 0$, $t = 1$, $t = 2$, $t = 3$. $t = 4$ and $t = 5$.	e first
	You must show all your working.	[3]
		·······
		·······
		·······
;)	(i) Calculate an estimate of how far Catrin was ahead of Delyth after 5 seconds.	[2]
	(ii) Explain why your answer to (c) (i) is an underestimate.	[1]













(b)	The square is to be covered in concrete.	
	Calculate the area of the square. Expand any brackets, and simplify your answer.	[3]
	END OF PAPER	

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Question number	Additional page, if required. Write the question number(s) in the left-hand margin.	Examine only





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