Surname

Centre Number

Other Names

GCSE – NEW



3310U40-1

MATHEMATICS – NUMERACY **UNIT 2: CALCULATOR-ALLOWED** INTERMEDIATE TIER

FRIDAY, 4 NOVEMBER 2016 – MORNING

1 hour 45 minutes

Suitable for Modified Language Candidates

ADDITIONAL MATERIALS

A calculator will be required for this paper.

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 guestions in the spaces provided.

If you run out of space, use the continuation page at the back of the booklet, taking care to number the question(s) correctly.

Take π as 3.14 or use the π button on your calculator.

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 5(a), the assessment will take into account the quality of your linguistic and mathematical organisation, communication and accuracy in writing.



For Ex	aminer's us	e only
Question	Maximum Mark	Mark Awarded
1.	4	
2.	11	
3.	6	
4.	6	
5.	10	
6.	6	
7.	5	
8.	6	
9.	14	
10.	12	
Total	80	











Examiner only

> 3310U401 05

	(iii)	Twice as many women as men chose <i>Talent shows</i> as their favour programme. Calculate how many women chose <i>Talent shows</i> .	rite type of T
		You must show your working.	[;
(b)	1000	people were asked,	
		'Should name programmer include details of the weather?	
		Yes or No?	
	70% A nie	of the people answered 'yes'.	
	/ v pic		
	What	size would the angle be to represent the answer 'yes'?	L
	What	size would the angle be to represent the answer 'yes'?	l
	What	size would the angle be to represent the answer 'yes'?	
	What	t size would the angle be to represent the answer 'yes'?	
	What	t size would the angle be to represent the answer 'yes'?	l
	What	t size would the angle be to represent the answer 'yes'?	
	What	t size would the angle be to represent the answer 'yes'?	l
	Wha	t size would the angle be to represent the answer 'yes'?	l
	Wha	t size would the angle be to represent the answer 'yes'? Angle representing 'yes' is	l
	Wha	t size would the angle be to represent the answer 'yes'? Angle representing 'yes' is °	
	Wha	t size would the angle be to represent the answer 'yes'? Angle representing 'yes' is °	
	Wha	t size would the angle be to represent the answer 'yes'? Angle representing 'yes' is °	l



Examiner only

6

3.	Loretta is paid in euro She is checking her ta	os. ax bill for last year.		
	The tax rates last yea	r were as follows:		
	No tax on the fiEarnings aboveEarnings above	irst €3500 of earnings e €3500 and up to €10 e €10 500: taxed at a ra	500: taxed at a rate of ate of 35%	25%
	Last year, Loretta's to	tal earnings before tax	were €34 500.	
	How much tax did Lor You must show all you	retta pay in total? ur working.		[6]
		Tax paid = €		



3.

(a)	The exchange rate on the internet last week was $\pounds 1 = 99.40$ rupees.	
	If Ewan had been going on holiday last week, how many rupees could he have bou	ıght? [2]
(b)	Ewan exchanges his money on arrival in India. The exchange rate is now $\pounds 1 = 99.72$ rupees.	
	The exchange bureau only has 500 rupee notes. Ewan wants to buy as many rupees as possible with his £450 savings.	
	How much of his £450 will Ewan spend buying rupees? Give your answer correct to the nearest penny.	
	You must show all your working.	[4]

(a)	In this part of the question, you will be assessed on the quality of your organisation, communication and accuracy in writing.	Examiner only
	Railcard for 16 to 25 year olds £30 for a year Get <mark>1</mark> 3 off all your rail travel	
	Nerys and Eleri are sisters. Nerys is 22 years old and Eleri is 27 years old. The two sisters live in Holyhead. Their aunt lives in Milford Haven. They travel by train to visit their aunt 3 times a year. Nerys buys a 16-25 Railcard to use for these journeys. They buy single rail tickets for each journey. The cost of a single rail ticket from Holyhead to Milford Haven is £84.50. The journey home from Milford Haven also costs £84.50 per ticket.	
	In a year, how much less does Nerys pay than Eleri for the journeys to Milford Haven and back? You must show all your working. [5 + 2 OCW]	
	(a)	(a) In this part of the question, you will be assessed on the quality of your organisation, communication and accuracy in writing. Railcard for 16 to 25 year olds £30 for a year Get $\frac{1}{3}$ off all your rail travel Nerys and Eleri are sisters. Nerys is 22 years old and Eleri is 27 years old. The two sisters live in Holyhead. Their aunt lives in Milford Haven. They travel by train to visit their aunt 3 times a year. Nerys buys a 16-25 Railcard to use for these journeys. The your sold a single rail tickets for each journey. The cost of a single rail ticket for Holyhead to Milford Haven is £84.50. The journey home from Milford Haven also costs £84.50 per ticket. In a year, how much less does Nerys pay than Eleri for the journeys to Milford Haven and back? You must show all your working. [5 + 2 OCW]



 (b) Cristiano is 22 years old. He sometimes travels from Rhyl to Llandudno Junction by train. The cost of a single rail ticket from Rhyl to Llandudno Junction is £7.80.

.....

Nerys advises Cristiano to buy a Railcard. Cristiano says,

It is not worth paying £30 for the Railcard.

How many times in a year would Cristiano have to travel to make it cheaper for him if he buys a Railcard? [3]

Examiner only

	10	
6.		Examiner only
(a)	The total area of all the woodlands in Wales is 303 000 hectares .	
	Individual woodlands that have an area of 2000 hectares or more make up 76% of the total area of all the woodlands in Wales.	
	Complete the following statement.	
	'Woodlands with areas of less than 2000 hectares in Wales cover a total area of	
	hectares.' [3]	



(b)	The price of softwood changes each year. The price has increased by 6% every year for each of the last 5 years . Before this, the price had decreased by 2% every year. Seven years ago the price of softwood was £34 per m ³ .	Exar
	Calculate the current price of softwood.	[3]
•••••		
·····		
•••••		
·····		
••••••		
•••••		
•••••	Current price of poftwood is C	





(b) The Headteacher decides to place signs around the school site to stop pupils using their bikes on grassed areas.

He introduces a new sign to pupils in the school newsletter. The size of the sign in the newsletter is shown below.



Diagram not drawn to scale

A mathematically similar new sign is placed near the side of the playing field.



Diagram not drawn to scale

It is 33·6 cm high. How wide is this sign?	[2]
Width is cm	



Examiner



(a)	Calculate the length of the diagonal of a small square. Give your answer correct to 1 decimal place.	[3]
b)	Calculate the area of the window guard .	
	You must show all your working	[0]
		[3]
		[3]
		[3]
		[3]
		[3]



9. Gwenda enjoys road running.

(a) She keeps a record of her run each day this week.

Day	Sun	Mon	Tues	Wed	Thurs	Fri	Sat
Distance	4∙6 km	5∙4 km	2·2 km	6·2km	7∙2 km	2·2 km	3∙4 km
Time	26 mins	31 mins	12 mins	35 mins	40 mins	14 mins	22 mins

Last week, her average speed for the week was 9.6 kilometres per hour. Calculate Gwenda's percentage improvement in her average speed from last week to this week. You must show all your working. [6]

••••••			••••••
••••••			••••••
			••••••
			••••••
			••••••
•••••••••••••••••••••••••••••••••••••••			••••••
••••••			••••••
••••••			
••••••			••••••
Desser		0/	
Percen	itage improvement is		



Examiner only





lere	are hi	s results			
		[Diameter, d (microns)	Frequency	
			$1 \leq d < 2$	2	
			$2 \leqslant d < 4$	6	
			$4 \leq d < 5$	8	
			$5 \leqslant d < 9$	4	
(a)	(i)	Calcula	te an estimate of the mean diam	eter of a dust particle.	[4]
	 (ii)	Rhodri Rhodri	measures the diameters of anotl	ner 25 dust particles.	
	 (ii)	Rhodri Rhodri 'Th wit	measures the diameters of anot is told, e ratio of dust particles with h diameters greater than or e	ner 25 dust particles. diameters less than 4 qual to 4 microns is 7	4 microns to those 8.'
	 (ii)	Rhodri Rhodri 'Th wit He find	measures the diameters of anot is told, e ratio of dust particles with h diameters greater than or e s this fact is true when he consid	ner 25 dust particles. diameters less than 4 qual to 4 microns is 7 lers all 45 dust particles	4 microns to those : 8.' 5.
	 (ii)	Rhodri Rhodri 'Th wit He find How m You mu	measures the diameters of anot is told, h diameters greater than or e s this fact is true when he consid any of the extra 25 dust particles st show your working.	ner 25 dust particles. diameters less than 4 qual to 4 microns is 7 lers all 45 dust particles have a diameter of less	4 microns to those : 8.' s. s than 4 microns? [3]
	 (ii)	Rhodri Rhodri 'Th wit He find How m You mu	measures the diameters of anot is told, h diameters greater than or e s this fact is true when he consid any of the extra 25 dust particles st show your working.	ner 25 dust particles. diameters less than 4 qual to 4 microns is 7 lers all 45 dust particles have a diameter of less	4 microns to those : 8.' s. s than 4 microns? [3]
	(ii)	Rhodri Rhodri 'Th wit He find How m You mu	measures the diameters of anoth is told, h diameters greater than or e s this fact is true when he consid any of the extra 25 dust particles st show your working.	ner 25 dust particles. diameters less than 4 qual to 4 microns is 7 lers all 45 dust particles have a diameter of less	4 microns to those : 8.' s. s than 4 microns? [3]
	(ii)	Rhodri Rhodri 'Th wit He find How m You mu	measures the diameters of anot is told, e ratio of dust particles with h diameters greater than or e s this fact is true when he consid any of the extra 25 dust particles st show your working.	ner 25 dust particles. diameters less than 4 qual to 4 microns is 7 lers all 45 dust particles have a diameter of less	4 microns to those 8.' s. s than 4 microns? [3]
	(ii)	Rhodri Rhodri 'Th wit He find How m You mu	measures the diameters of anot is told, e ratio of dust particles with h diameters greater than or e s this fact is true when he consid any of the extra 25 dust particles st show your working.	ner 25 dust particles. diameters less than 4 qual to 4 microns is 7 lers all 45 dust particles have a diameter of less	4 microns to those : 8.' s. s than 4 microns? [3]



(b)	Rhodri studies a cylindrical cell under his microscope.	
	The height of the cell is 2 microns. The circumference of the cell is 5 microns.	
	Calculate the volume of the cell he sees under the microscope. Give your answer in microns ³ , correct to 1 significant figure.	[5]
	Volume is microns ³	
	END OF PAPER	

© WJEC CBAC Ltd.

Question number	Additional page, if required. Write the question number(s) in the left-hand margin.	Examiner only
		1



(3310U40-1)

© WJEC CBAC Ltd.