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6	FRIDAY, 10 NOVEMBER 2023 - N	ORNING	ì				
	MATHEMATICS – Componer Calculator-Allowed Mathematics	nt 2					
	FOUNDATION TIER	For Examiner's use only					
	2 hours 15 minutes	Question	Maximum Mark	Mark Awarded			
in the second		1.	7				
ADDITIONAL MATERIALS		2.	3				
An additional formulae sheet.		3.	5				
A calculator will be required for this examination. A ruler, protractor and a pair of compasses may be required.		4.	4				
		5.	3				
INSTRUCTIONS TO CANDIDATES		6.	4				
Use black ink or black ball-point pen		7.	6				
Do not use gel p	en or correction fluid.	8.	3				
′ou may use a p	encil for graphs and diagrams only.	9.	4				
Vrite your name	, centre number and candidate number in	10.	6				
ne spaces at the	e top of this page.	11.	5				
vou run out of	space, use the additional page(s) of the	12.	4				
ack of the book	13.	5					
orrectly.		14.	9	4			
ake π as 3.142 c	15.	5					
NFORMATION FOR CANDIDATES		16.	4				
You should give details of your method of solution when appropriate.		17.	4				
		18.	4				
Jnless stated, diagrams are not drawn to scale.		19.	3				
cale drawing so	olutions will not be acceptable where you	20.	4	<u></u>			
he number of m	parks is given in brackate at the and of each	21.	5	·			
uestion or part-	question.	22.	5				
ou are reminde	d of the need for good English and orderly,	23.	8				
ear presentatio	n in your answers.	24.	4				
		25.	6				
		Total	120				

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CJ/GR*(A23-C300U20-1)

C300U201 01

Formula list

2

Area and volume formulae

Where r is the radius of the sphere or cone, l is the slant height of a cone and h is the perpendicular height of a cone:

Curved surface area of a cone = πrl

Surface area of a sphere = $4\pi r^2$

Volume of a sphere = $\frac{4}{3}\pi r^3$ Volume of a cone = $\frac{1}{3}\pi r^2 h$

Kinematics formulae

Where *a* is constant acceleration, *u* is initial velocity, *v* is final velocity, *s* is displacement from the position when t = 0 and *t* is time taken:

v = u + at $s = ut + \frac{1}{2}at^{2}$ $v^{2} = u^{2} + 2as$



4	-	Cost of posting		
		1st class	2nd class	
	Small letter	95p	68p	
	Large letter	£1.45	£1.05	
	Parcel	£4.45	£3.35	
se costs from a) Maria po What is t	the table to answer osts one 2nd class sn the total cost of postint +0.68 $4\cdot45$	the following. nall letter and one ng these two items	1st class parcel. ? ይട	[2] • 1 3
	5.13		EJ	
c) Gareth s	pent £15.95 posting $1 \cdot 45$	$\frac{4 \cdot 3}{8 \cdot 1}$ $\frac{2 \cdot 3}{1 \cdot 2}$ large letters 1st cla	nss.	E1-20//
How mai 15•9	ny letters did he post <u>5 - 1·45</u>	? = 11 //		[2]
d) Lee has Does he	£3.50. have enough money	to post five small	letters?	
	Yes 🔽	No		
Give the	reason for your ansv	ver.		[1]
68 × 5 3.40	asland 2nd d	y as the class	y are a	ll sent

C300U201 03





5 Examiner only [1] (i) Work out the perimeter of shape A. (b) 7+3+5+2+2+5 = 24 cm(ii) On the grid below, draw a rectangle that has the same perimeter as shape A. [1] C300U201 05 LXW P = 2411×1 L+W = 12 $(0 \times 2$ rectangle with any of these dimensions. 9 x 3 8×4 7 x 5

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05









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(~)	The formula shown below can be used to convert between temperatures in degrees Fahrenheit (F) and temperatures in degrees Celsius (C).			
	F = 1.8C + 32			
On a particular day in Greece, the temperature was 25°C. Use the formula to convert this temperature to degrees Fahrenheit (F).				
	$F = 1.8 \times 25 + 32$			
	$F = 77^{\circ}F$			
d.				
	HU DO - SILL - SUL DIS			
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Exam Alex and Louise buy some cereal bars and drinks at a shop. 8. onl The image below shows the items that Alex and Louise bought and their total cost. Total cost Louise GITTAL DAT CHIELDOIS CHIRAL DALS CHIRALDAR £5 Total cost Alex GEREAL DATS £5.60 Assume that: each cereal bar is identical each drink is identical. Find the cost of one cereal bar and the cost of one drink. [3] = E1.25 cost of 1 cereal bar 5 4 E4.35 cost of 3 drinks 5.60-1.25 = -3 F1.45 4.35 T. cost of 1 - drin One cereal bar costs £1.25 E1.45 One drink costs

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Examiner only The manager of a shop calculates the wages of her staff at the end of each week. 9. She uses this diagram. Weekly wages Number of Hourly pay Bonus = Total wage +hours × rate worked Hourly pay rates Junior sales £10.42 assistant Senior sales £11.50 assistant Hamza is a junior sales assistant. (a) Last week he worked for 25 hours and had a bonus of £80. C300U201 13 [2] What was Hamza's total wage last week? = E340.50 $\times 10.4$ Julie is a senior sales assistant. (b) Last week her total wage was £271 including a bonus of £64. How many hours did Julie work last week? [2] 271-64 = 207 18 hours 207 - 11 \sim

14 Exami 10. Jarrad won £3000 in a competition. only He spent £500 and gave 37% of the <u>remaining money</u> to charity. This was shared equally between five different charities. (a) How much did each charity receive? [4] 3000 - 500 = 2500 $37 \times 2500 = 925$ 100 925-5 = E185 Each charity received <u>E185</u> Jarrad saves £600 of the £3000. (b) What percentage of the £3000 does Jarrad save? [2] 20% X 100 600 -3000 © WJEC CBAC Ltd. (C3000U20-1)

15 Examiner only Simplify each of the following. 11. (a) [2] 7b+5a -9b (i) a [1] (ii) $6w \div 2w$ = 6 = 3/1 Amanda buys 5 bags of apples. Each bag contains n apples. (b) She gives away 2 apples from each bag. Write an expression for the total number of apples Amanda has left. [2] apples each bag has (n-2 Ef C300U201 15 OR

16 12. The Cowell family are planning a holiday to Spain for seven days. Exam onl They can either pay for a package deal or pay for return flights, accommodation and food separately. The costs are shown below. **Pay Separately** Return flights, accommodation, Package Deal and food are free for children £2300 under 2 years old. A seven-day holiday to **Return flights** Spain for a family of four. £352 per person Return flights, accommodation Accommodation and food included. £43 per person, per day Food £85 per person, for seven days On the holiday there will be two adults and two children. The children are aged 8 and 1 years old. - free They each require return flights, accommodation and food. The Cowell family wish to choose the cheaper option. Which option should they choose? Package Deal Pay Separately Show how you decide. [4] Childmana Adults 352×2=704 hts $43 \times 2 \times 7 = 602$ ccom 43x7=30 85×2=170 IOTAI

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C300U201

Exam 14. onl (a) The amount of electricity and gas used in a home is measured in units. In the first week of May, the Singh family used 56 units of electricity and 245 units of gas. The cost per unit of electricity is 32p. The total cost for the units of electricity and gas the Singh family used in the first week of May was £39.97. What is the cost of one unit of gas? [4] E39.97 ost : Total Elec 56×0.32 ICIT cost E22.05 Cos of ade =E0.09 Unit 5 ade or One unit of gas costs 18 © WJEC CBAC Ltd. (C3000U20-1)

Examiner The Singh family are calculating their electricity bill for the 30 days of June. only (b) They use 210 units of electricity in June. The cost per unit of electricity is 32p. They pay a fixed charge of 28p per day. VAT at 5% is added to the total of these costs. Calculate the total cost of the Singh family's electricity bill for June. [5] cost of electric = 210 x 0.32 = E67.20 £8.40 Fixed cost = 30 x 0.28 E75.60 Before VAT 67.20+8.40= Ξ. VAT Plus $1.05 \times 75.60 =$ E79.38 1 The total cost of the Singh family's electricity bill for June is $\pounds 79.38$



Examiner Rhiannon left the park at 11:30 and cycled back along the same road to a friend's (C) only (i) house that is 5 miles from her home. This journey took 45 minutes. 11.30+45 = 12.15 pm Draw this journey on the graph. [1] Calculate the average speed of Rhiannon's journey from the park to her friend's (ii) house. 10 0.75 45mins = 0.75 hours Give your answer in miles per hour. [2] 3 mph S=D=10 13. 0.75 21







Examiner **19.** Shortbread biscuits are made from flour, butter and sugar. Their masses are in the ratio 4 : 3 : 2 respectively. only FIB:S 4:3:2 What fraction of a shortbread biscuit is made up of sugar? (a) [1] 4+3+2 = 9 1400 g of flour is used to make a batch of shortbread biscuits. How many grams of butter is used for this batch of shortbread biscuits? (b) [2] F: B part 1400+4=3509 x350 x350 х 1.×350 1 19 = 10509 = 700g 1050 g of butter.

26 Examir only 20. Lucy bought a car 9 years ago for £12250. The car depreciated in value by 18% in the first year. In each of the following years, her car depreciated by 15% of its previous year's value. By how much has the car decreased in value in the last 9 years? [4] $100 - 18^{\circ}/_{0} = 82^{\circ}/_{0} = 0.82$ 1 yea 100-15% = 85% = 0.85 8 Value after 9 years: 12250 × 0.82 × 0.85 = E2737.17 Amount decreased by: = E9512-83 12250-2737.17 Lucy's car has decreased in value by 69512-83

Examiner only 21. Regan caught 70 fish on a fishing trip. He measured the length of each of the fish in centimetres. The table shows his results. Length, *l* (centimetres) Number of fish 1187.5 62.5 $60 \leq l < 65$ × 19 -67.5 1147.5 $65 \leq l < 70$ 17 X Ξ 1667-5 $70 \leq l < 75$ 72-5 × 23 = 775 $75 \leq l < 80$ -5 71 X 10 = $80 \leq l < 85$ 82-5 82.5 X 1 -70 Total 4860 Calculate an estimate for the mean length of these fish. (a) [4] moan = 4860 09.4 cm Regan thinks that the median length of fish is in the group $70 \le l < 75$. (b) Is Regan correct? Yes No Give the reason for your answer. [1] 70 fish => 70 = 35th fish is the modian 35th fish falls in 65 < L < 70 lhe

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Exami only 22. Jan has a large piece of card. The card has width 60 cm and length 96 cm. 96 cm 60 cm She uses a machine to cut identical circles out of the card. Each circle has a radius of 6 cm. d = 2r= 2×6 = 12cm 6 cm 96cm 8 96-12=8 60-12=5 60cm Diagram not drawn to scale Jan has cut five circles as shown on the diagram above. She continues in this way to cut as many circles as possible from the card. What is the maximum number of circles Jan can cut out of the card? [1] (a) Daircles 8×5 4(

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Examiner only (b) Jan cuts out the maximum number of circles from the card. What area of card is left over? [4] Area 1 circle = $\pi r^2 = \pi \times 6^2 = 36\pi$ cm² 40× 36TT = 1440TT 40 circles = Area of card = 96×60 = 5760 cm² left over = 5760-Area 144 =1236-1 2 Area of card left over 1236 cm² Accept 1235.5 to 1238.4]





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Exam 25. Vaughan cycles down a track from the top of a mountain to the bottom. onl The track goes down at an angle of 48° to the horizontal. Vaughan is 800 feet above ground level. Vaughan Top of the track 48 42 X 800 feet Ground level Bottom of the track Diagram not drawn to scale Vaughan cycles from the top of the track to the bottom of the track. (a) [4] What distance has he cycled? = 1076.51 The distance Vaughan has cycled is 1077 feet. [1] State an assumption you have made in answering part (a). (b) (i) tace of the slope smoot he has travelled + shortest and stance If your assumption is not correct, what effect would this have on your answer to (ii) [1] part (a)? ayded further He would have END OF PAPER

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