

Cambridge International Examinations Cambridge International General Certificate of Secondary Education

	CANDIDATE NAME			
	CENTRE NUMBER		CANDIDATE NUMBER	
*				0590/22
н	MATHEMATICS			0580/32
н	Paper 3 (Core)			May/June 2017
	,			-
N				2 hours
γ ω	Candidates answer of	n the Question Paper.		
N 9 8	Additional Materials:	Electronic calculator Tracing paper (optional)	Geometrical instruments	

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.

Write in dark blue or black pen.

You may use an HB pencil for any diagrams or graphs.

Do not use staples, paper clips, glue or correction fluid.

DO NOT WRITE IN ANY BARCODES.

Answer all questions.

If working is needed for any question it must be shown below that question.

Electronic calculators should be used.

If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.

For π , use either your calculator value or 3.142.

At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [] at the end of each question or part question. The total of the marks for this paper is 104.

This document consists of 15 printed pages and 1 blank page.



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1 Here is part of the menu in a café.

Item	Price
Теа	\$2.40
Coffee	\$2.80
Fruit juice	\$1.85
Pizza	\$4.15
Vegetable pasty	\$3.60
Chicken curry	\$5.20
Ice cream	\$2.80
Cake	\$3.25
Yoghurt	\$1.40

(a) Jenna buys 3 coffees and 2 cakes.

Work out how much she spends altogether.

	\$[3]
(b)	Find the maximum number of pizzas Harry can buy for \$20. Work out the change he receives from a \$20 note.
	Number of pizzas =
	Change = \$[3]
(c)	Priti's meal costs \$7.60 . She gives the waitress 15% extra for service.
	Work out the total amount she pays.
	\$[2]
(d)	Elena and Maria are waitresses in the café. One day they receive \$96 for service. They share the \$96 in the ratio Elena : Maria = 3 : 1.
	Work out how much Elena receives.
	\$[2]

0580/32/M/J/17



(e) The café's opening hours are shown below.

Day	Opening hours							
Monday	CLOSED							
Tuesday	1100 to 1500 and 1700 to 2200							
Wednesday	1100 to 1500 and 1700 to 2200							
Thursday	1100 to 1500 and 1700 to 2200							
Friday	1100 to 1500 and 1700 to 2200							
Saturday	1030 to 2300							
Sunday	0930 to 2100							

3

(i) Find the number of hours the café is open during one week.

hours	гот	
nours	4	

(ii) During opening hours the café needs 3 people on duty. Each person works 36 hours in a week.

Find the number of people the café needs in a week.

.....[3]

(f) The café owner pays rent. The **monthly** rent is \$6.40 for each square metre of floor area. The floor area is 72.5 m^2 .

Calculate the total rent the café owner pays in one year.

\$[3]



Write an expression for the perimeter of the rectangle. Give your answer in its simplest form.

.....[3]

(c) (i) Work out the value of 5x + 10y when x = 7 and y = 9.

.....[2]

(ii) Work out the value of $4r^2 - pr$ when p = 3 and r = 5.

.....[2]

(d) Solve.

5(3x-6) = 75

x =[3]

(e) Mr and Mrs Barker have three children, Molly, Dean and Raul.

5 Ar and Mrs Barker have three children, Molly, Dean	and Raul.	WWW. MY MANASHS
	Age, in terms of x	···Con
Molly's age is x years	x	
Dean is 5 years younger than Molly	x-5	
Raul is 4 years older than Molly		
Mr Barker is 4 times older than Molly		
Mrs Barker is 6 years younger than Mr Barker		

- Complete the table with expressions in terms of *x*. (i)
- The total of the five ages is 125 years. **(ii)**

Write down an equation in terms of *x* and show that it simplifies to 11x - 7 = 125.

(iii) Solve the equation 11x - 7 = 125 to find Molly's age.

Molly's age = years [2]

[2]

[1]

- (a) The table shows the results of a survey in a village. 3
- www.mymathscloud.com It shows the number of males and females who are left-handed, right-handed or ambidextrous.

	Left-handed	Right-handed	Ambidextrous	Total
Male	17		5	84
Female	21	102	3	126
Total	38	164	8	210

- (i) Complete the table by finding the number of males in the survey who are right-handed. [1]
- (ii) Using these results, write down the probability that
 - (a) a male chosen at random is left-handed,

											 	[1]
	(b)	a le	ft-hande	ed person	n choser	n at rando	om is fe	male,				
											 	[1]
	(c)	a pe	erson cho	osen at r	andom	is right-h	anded.					
											 	[1]
(iii)	Her	e are	the ages	s of the p	people v	vho are a	mbidex	trous.				
			27	79	31	16	60	45	42	52		
	Fine	d the	median	age of tl	nese peo	ople.						
											 	[2]

(b) This table shows the results of another survey. It shows the number of people in each of 50 households.

Number of people	Frequency
1	5
2	8
3	12
4	14
5	7
6	4

Work out the mean number of people in each household.

.....[3]

(c) Some students in the village school were given a multiplication test and a spelling test. The scores are shown in the table.

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e) Some The so	students cores are	in the show	e villa m in tl	ge scł ne tab	iool w le.	ere gi	7 ven a	multi	plicati	on tes	t and	a spel	ling to	est.		nath
Spelling score	, test	14	16	33	22	26	17	36	25	10	30	55	38	42	48	
Multipli test scor	cation	11	15	19	18	15	21	27	21	35	26	34	23	28	31	
	10															
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Iultiplicat	tion				*		*									
est score	20-					*			*							
	10	·			* *		×									
	10-															
	0															
	0-)		10		20	Spell	30 ing te	st sco	4(re)		50		60	
(i) (Complete	e the s	catter	diagr	am.											
]	The first	ten po	oints h	ave b	een pl	otted	for yo	u.								[2]
(ii) (One stude	ent ha	s a hig	gh sco	re in t	he mu	ıltiplic	cation	test a	nd a lo	ow sco	ore in	the sp	elling	g test.	F 4 3
(;;;) 1	In the sc	atter o	alagra	m, pu tion is	t a ring	g arou	ind thi	is poii	in grar	n9						[1]
(111)	w nat typ	010	oncia	1011 15	SHOW	11 111 1	1115 500	allei u	lagiai							
											•••••					[1]
(iv) (On the sc	atter o	diagra	m, dra	aw a li	ne of	best f	ìt.								[1]
(v) A	Another s	studen	ıt, Kir	n, sco	red 45	in the	e spell	ling te	st but	was a	bsent	for th	e mul	tiplica	ation tes	t.
τ	Jse your	line o	of best	fit to	estim	ate a s	score f	for Ki	m in t	he mu	ltiplic	ation	test.			

.....[1]

									8						www.ny.	MAN	Strins of the second
4	(a)			4	10	11	18	20	27	28	32	36	40	56		-070	Jud.co.
		From	n the li	st ab	ove, w	rite do	wn										m
		(i)	a mult	tiple	of 12,												
															 	[1]	
		(ii)	a facto	or of	8,												
															 	[1]	
		(iii)	a prim	ne nu	mber,												
																[1]	
		(iv)	a soua	ire nu	ımber.										 	[1]	
		()															
															 	[1]	
		(v)	a cube	e nun	nber.												
															 	[1]	
	(b)	Fine	the lov	west	comm	on mu	ltiple (LCM)	of 32 a	and 80.							
															 	[2]	
	(c)	Fine	d the va	lue o	of												
		(i)	√68.8	<u>19</u> ,													
															 	[1]	
		(ii)	³ √196	583.													

.....[1]





AC = 40 m and BC = 35 m.

Using a ruler and compasses only, construct the triangle *ABC*. Show all your construction arcs.



Scale : 1 cm to 5 m

[3]



Using a straight edge and compasses only, construct and shade the region inside PQRS that is

- nearer to *PS* than to *SR*
- and
- nearer to *R* than to *S*.

Show all your construction lines and arcs.

[5]



Port *M* and port *P* are due west of port *R*. Port *M* is due south of port *Q*. QM = 45 km and QR = 117 km.

7

(i) Write down the bearing of port P from port R.

.....[1]

(ii) Work out the bearing of port P from port Q.

.....[3]

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(iii) Work out the distance *MR*.

13

MR = km [3]

(b) The interior angle of a regular polygon is 171°.

Work out how many sides the polygon has.

.....[3]



(c) Use your graph to solve the equation $\frac{15}{x} = 8$.

8

		15	Mun My My My
9	(a)	Write down the next two terms in each of these sequences.	THSCIOI
		(i) 8, 14, 20, 26,	sa.com
		(ii) 12, 10, 7, 3,	
	(b)	Find the <i>n</i> th term of this sequence.	
		14, 25, 36, 47,	
			[2]
			[2]
	(c)	Work out the second term of the sequence whose <i>n</i> th term is $5(3 - 1)$	-2 <i>n</i>).
			[1]
	(d)	1, 4, 9, 16,	
		The <i>n</i> th term of this sequence is n^2 .	
		Use this information to write down the <i>n</i> th term of each of these se	quences.
		(i) 2, 5, 10, 17,	
			[1]
		(ii) 3, 12, 27, 48,	

.....[1]

0580/32/M/J/17



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16

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