		RGS									RGS
		ARGS		Ra	affles	Gir]	ls' So Dary)	choo			
	Established in	1879									
	Name:	RGS	RGS	RGS	RGS	RGS	RGS				
	Class:	Year	1/	RGS			RGRE	egister	No:	RGS	RGS
				N	IATHE YEAF	MATIONE	CS				
				End	l-of-Year	Assess	ment				
RGS	Thursday	RGS	RGS	RGS	3 Octob	er 2019	RGS	RGS	RGS	2 hou	rs
	INSTRUCTI	ONS TO	CANDID	ATES	DCS	DCS	PCS		For exar	niners' u	se
	NG5	KGS	KGS						Question	M	arks
	Write in dark	c blue or	black ink.	lionnaa				0.00			/2
	You may use	e a penci	i ior any c	lagrams	or graphs.	RGS			2		/3
	Answer ALL	. the que	stions in t	he space	provided.			DICC	3	PGS	/6
	O O O O O O O O O O		1		4 t				4		/3
RGS	Omission of	essentia	l working	will result	t in a loss (of marks.		RGS	4	RGS	/3
266	Omission of The use of a	essentia In approv	l working ved scient	will result ific calcul	t in a loss lator is exp	of marks. bected, wh	RGS 1ere	RGS	4 5 6		/3 /3 _/4
	Omission of The use of a appropriate.	essentia In approv	l working ved scient	will resuli ific calcul	t in a loss (lator is exp	of marks. bected, wh	iere	RGS	4 5 6 7		/3 /3 /4 /3
RGS	Omission of The use of a appropriate.	essentia in approv	l working ved scient	will result ific calcul t specified	t in a loss lator is exp d in the ou	of marks. bected, wh estion, ar	nere RGS	R <u>GS</u>	4 5 6 7 8	RGS	/3 /3 /4 /3 /6
	Omission of The use of a appropriate. If the degree answer is no	essentia in approv e of accur ot exact, (l working ved scient racy is no give the a	will result ific calcul t specifie nswer to	t in a loss lator is exp d in the qu three sign	of marks. bected, wh estion, ar ificant figu	nere nd if the ures.	R <mark>i S</mark> R i S	4 5 6 7 8 9	RGS RGS	/3 /3 /4 /3 /6 /5
	Omission of The use of a appropriate. If the degree answer is no Give answer	essentia in approv e of accur ot exact, (rs in degr	l working ved scient racy is no give the a rees to on	will result ific calcul t specified nswer to e decima	t in a loss lator is exp d in the qu three sign Il place.	of marks. bected, wh estion, ar ificant figu	nere NGS nd if the ures.	R 65 R 65	4 5 6 7 8 9 10	kGS	/3 /3 /4 /3 /6 /5 /3
	Omission of The use of a appropriate. If the degree answer is no Give answer	essentia an approv of accur ot exact, (rs in degr	I working red scient racy is no give the a rees to on lator value	will result ific calcul t specified nswer to e decima	t in a loss lator is exp d in the qu three sign il place. the questi	of marks. bected, wh estion, ar ificant figu	nere nd if the ures.	R 65 R 65 R 65	4 5 6 7 8 9 10 11		/3 /3 /4 /3 /6 /5 /3 /5 /5
	Omission of The use of a appropriate. If the degree answer is no Give answer For π , use ye answer in te	essentia n approv of accur ot exact, g rs in degr our calcu rms of π.	l working red scient racy is no give the a rees to on lator value	will result ific calcul t specified nswer to e decima e, unless	t in a loss lator is exp d in the qu three sign I place. the questi	of marks. bected, wh estion, ar ificant figu	nere nd if the ures.	R S R S R S	4 5 6 7 8 9 10 11 12		/3 /3 /4 /3 /6 /5 /3 /5 /3 /3
	Omission of The use of a appropriate. If the degree answer is no Give answer For π , use ye answer in te	essentia an approv of accur ot exact, g rs in degr our calcu rms of π .	I working red scient racy is no give the a rees to on lator valu	will result ific calcul t specified nswer to e decima e, unless	t in a loss lator is exp d in the qu three sign il place. the questi	of marks. bected, wh estion, ar ificant figu	nere nd if the ures. es the	R S R S R S R S	4 5 6 7 8 9 10 11 12 13		/3 /3 /4 /3 /6 /5 /3 /5 /3 /3 /8
	Omission of The use of a appropriate. If the degree answer is no Give answer For π , use yo answer in ter You are rem	essentia an approve of accur ot exact, g rs in degr our calcu rms of π . inded of	I working red scient racy is no give the a rees to on lator value the need	will result ific calcul t specified nswer to e decima e, unless for clear	t in a loss lator is exp d in the qu three sign il place. the questi presentatio	of marks. bected, wh estion, ar ificant figu on require	nere nd if the ures. es the	R 55 R 55 R 55 R 55	4 5 6 7 8 9 10 11 12 13 14		/3 /3 /4 /3 /6 /5 /5 /3 /5 /3 /8 /5
RGS RGS RGS RGS	Omission of The use of a appropriate. If the degree answer is no Give answer For π , use ye answer in te You are rem	essentia in approv of accur ot exact, g rs in degr our calcu rms of π . inded of	I working red scient racy is no give the a rees to on lator value the need	will result ific calcul t specified nswer to e decima e, unless for clear (ATES	t in a loss lator is exp d in the qu three sign al place. the questi presentatio	of marks. bected, wh estion, ar ificant figu on require	nere nd if the ures. es the	R 5 R 5 R 5 R 5 R 5 R 5	4 5 6 7 8 9 10 11 12 13 14 15		/3 /3 /4 /3 /6 /5 /5 /3 /5 /3 /8 /5 /3
165 165 165 165	Omission of The use of a appropriate. If the degree answer is no Give answer For π , use yo answer in tel You are rem	essentia an approv e of accur ot exact, φ s in degr our calcu rms of π. inded of	I working red scient racy is no give the a rees to on lator value the need	will result ific calcul t specified nswer to e decima e, unless for clear	t in a loss lator is exp d in the qu three sign al place. the questi presentatio	of marks. bected, wh estion, ar ificant figu on require	nere nd if the ures. es the answers.	R S R S R S R S	4 5 6 7 8 9 10 11 12 13 14 15 16		/3 /3 /4 /3 /6 /5 /3 /5 /3 /8 /5 /3 /4
2012 2013 2013 2015 2015 2015 2015 2015 2015 2015 2015	Omission of The use of a appropriate. If the degree answer is no Give answer For π , use yo answer in tel You are rem INFORMATI The number	essentia in approv e of accur ot exact, g rs in degr our calcu rms of π . inded of ION FOR of marks	I working yed scient racy is no give the a rees to on lator value the need CANDID is given	will result ific calcul ific calcul t specified nswer to e decima e, unless for clear ATES in bracke	t in a loss lator is exp d in the qu three sign il place. the questi presentation	of marks. bected, wh estion, ar ificant figu on require on in your on in your	nere nd if the ures. es the answers.	R S R S R S R S R S	4 5 6 7 8 9 10 11 12 13 14 15 16 17		/3 /3 /4 /3 /6 /5 /3 /5 /3 /8 /5 /3 /4 /4 /4
RG5 RG5 RG5 RG5 RG5	Omission of The use of a appropriate. If the degree answer is no Give answer For π , use ye answer in ter You are rem INFORMATI The number question or p	essentia an approv e of accur ot exact, g rs in degr our calcu rms of π . inded of ION FOR of marks part ques	I working yed scient racy is no- give the a rees to on lator value the need a CANDID is is given tion.	will result ific calcul t specified nswer to e decima e, unless for clear ATES in bracke	t in a loss lator is exp d in the qu three sign il place. the questi presentation	of marks. bected, wh estion, ar ificant figu on require on in your on in your	nere nd if the ures. es the answers.	R 5	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18		/3 /3 /4 /3 /6 /5 /3 /5 /3 /3 /4 /4 /4 /10
RGS RGS RGS RGS	Omission of The use of a appropriate. If the degree answer is no Give answer For π , use yo answer in tel You are rem INFORMATI The number question or p	essentia an approv e of accur ot exact, g rs in degr our calcu rms of π. inded of ION FOR of marks part ques	I working yed scient racy is no give the a rees to on lator value the need CANDID is given stion.	will result ific calcul t specified nswer to e decima e, unless for clear ATES in bracke this pape	t in a loss lator is exp d in the qu three sign il place. the questi presentation ts [] at the r is 80 and	of marks. bected, wh estion, ar ificant figu on require on in your e end of ea the weig	nere nd if the ures. es the answers. ach	R 5	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 P, A, U		/3 /3 /4 /3 /5 /5 /3 /5 /3 /8 /5 /3 /4 /4 /10

KGS	KGS	KGO	KGS	KGO		<u> </u>	KGO		KGS
Parent's	/ guardia	in's Name	RG <u>S</u>	RGS	RGS	RGS	RGS	RGS	RGS
Signatur	·e:	RGS			_ Date:				RGS

During Sports Fest, Alicia recorded a timing of 12.7 seconds for the 100 m sprint event. This

number had been corrected to 1 decimal place. State the largest and smallest possible values of her actual timing recorded, assuming that the stopwatch can measure up to 3 decimal [2] places. 2 Without the use of a calculator, evaluate $\frac{5}{4}\left[\left(\frac{2}{3}-2\right)^3+0.8\right]$, leaving your answer as a fraction. [3]

						3					
RGS	3 (a)	(i) E:	xpress 63	and 567 a	s product	of prime	factors.				[2]
		(ii) Tl (iii) W	he HCF of rite dowr	f 63, <i>m</i> an n the smal	d 567 is 2 llest posit	21. Find th ive value	he two sma of a who	allest poss le number	sible value r <i>n</i> if 567	es of <i>m</i> . <i>n</i> is a per	[2] rfect
	(b)	cu The nur	ibe. Expre nbers <i>P</i> ai	ess your and <i>Q</i> have	nswer in i an LCM	ndex nota of <i>R</i> . Sta	ation. ate the LC	M of <i>P</i> an	d <i>R</i> .	RGS	[1] [1] GS
		RGS							RGS		
RGS	RGS	RGS	RGS	RGS	RGS	RGS	RGS	RGS	RGS	RGS	RGS
RGS R	affles Girls	' School (Se	econdary)				2019 Year .	l Mathemat	ics End of Y	ear Assess [Turn (ment Over

4 Mr Goh is planning a learning journey to a museum for a group of 238 students. The organiser charges \$29.95 per student. Mr Goh budgeted \$8 000 for the learning activity.

RGS	(i)	By app	oroximatin	ig both th	ne cost ar	id the nu	mber of st	udents, e	stimate t	he cost o	f the
RGS	RG(ii)	learnin Explair	g journey. 1 if Mr Go	. Show yo oh has suf	ur workin ficient fur	ig clearly. Ids for thi	s activity.				[2] [1]SS
	RGS										
RGS	5 With	hout the	use of a c	alculator a	and given	that $g^2 =$	=3h-ef, f	and the v	alue of h	when $e =$	- 7, - 8
	f=1	5 and g =	= - 1.2.								[3]

RGS						RGS 5					
RGS	RGS		1.5(5x -	RGS	$\frac{1}{7x}$						
RGS	5 (a)	Express	6	$\frac{1}{2} - 3(x - 3)$	$(-2) + \frac{\pi}{4}$	as a single	e fraction i	in its simp	olest form	RGS	[3]
	(b) RGS	Gold co down ar	sts w cent 1 expressi	ts per gra on for the	m. Celina e mass of	bought a the neckla	gold neck ace in term	lace whic is of w an	h costs x : d x.	dollars. V	Vrite [1]
. .											
		RGS									
RGS											
RGS											
RGS	RGS										
	RGS										
RGS	RGS	RGS	RGS	RGS	RGS						
RGS	ract	$15r^2s - 5$	5 pr	complete	RGS						[1]65
	(b)	-2a(3c-	(-5) + 6b(3)	3c-5)							[2]
RGS	RGS	RGS	RGS	RGS	RGS	RGS	RGS	RGS	RGS	RGS	RGS
RGS R	affles Girls	' School (Se	condary)				2019 Year .	l Mathemat	ics End of I	ear Assess [Turn]	sment Over

					6					
8 A fr	action $\frac{n}{2}$	<i>n</i> is such	that wher	n 8 is adde	ed to the	numerator,	it beco	mes $\frac{1}{2}$. C)ne fifth o	f the
sum	of the n	umerator a	and denon	ninator is :	5. ^{RGS}			RGS		
RG(i)	Write of	lown two	equations	relating <i>n</i>	<i>n</i> and <i>n</i> .	RGS	RGS	RGS	RGS	[2]
RGS	method	and find	the origin	al fraction	n. (1) by		RGS	RGS	RGS	[4]65
									RGS	RGS

RGS RGS RGS RGS RGS <u>R</u>GS RGS RGS RGS RGS RGS

7

RGS 9	An c	open cylind	frical con	tainer of	radius 12	, cm and h	eight 20 c	m is to be	e painted o	on its exte	rior
	surfa (i)	ices. The c Find the	ost of pai total surfa	nting a state a state a state area t	urface of hat needs	area 1 m ² to be pair	is \$9.50. nted. Leav	/e vour an	swer in te	π erms of π	.[2]
	(ii)	Calculate cent.	e the cost	of paint	ing 15 su	ich conta	iners, leav	ving your	answer t	o the nea	irest [3]
RGS ¹⁰) A po	olygon has	<i>n</i> sides.	Three of	its interi	ior angles	are 84°,	126° and	l 150°. T	he remair	ning
	(n-)	3) angles	nave an av	verage si:	ze of 120	each. Fi	nd the val	ue or <i>n</i> .			[3]
	PGS										
_	KGS	K95	8.55	KGS	RGS	RGS	RGS	RGS	RGS	RGS	RGS

RGS RGS RGS RGS RGS [Turn Over GS

RGS RGS RGS RGS

						8 65					
	11 The	area of th	he shaded	region is	$\frac{9}{24}$ of the	e whole ci	ircle, as sh	nown in tl	ne diagran	n below.	
RGS					RGS	RGS	RGS.				
				RGS		A T					
				1	RGS	RG		RGS			
				kas							
				RGS		ol		Sector S			
				RGS		RGS		_]s			
				R	RGS			RGS			
				RGS		RGS		RGS			
	RGS	RGS	RGS	RGS	RGS	RGS	RGS	RGS	RGS	RGS	
	(i) RGS	Given 1 AB, lea	that the a ving your	rea of the answer in	circle is i terms of	144π cm ⁻ π.	, calculat	e the arc	length of	the mino	r arc [3]
	RG(ii)	The mi	inor secto	or AOB is	then cut a	and forme	ed into a c	one by jo	ining the	two radii	, OA
		and OB	3, together	:. Calculat	e the radi	us of the l	base of the	e cone.			[2]
			100.0								
								RGS	RGS	RGS	RGS
										×	

12 The wooden block *ABCDEFV* is made up of a rectangular-based pyramid and a triangularbased prism. *ABCD*, *ABFE* and *CDEF* are rectangles with AB = 25 cm, DE = 19 cm. The vertical height of triangle *ADE* is 12 cm and the vertical height of the wooden block is 48 cm. Find the volume of the solid. [3]

RGS	affles Girls	School (Se	econdary)			RGS	2019 Year 1	Mathemat	ics End of Y	ear Assessi. [Turn C	nent Iver
RGS	RGS	RGS	RGS	RGS	RGS	RGS		RGS	RGS	RGS	RGS
				RGS	KGO	${v}$					
				RGS		$\langle \rangle$	RGS				
				RGS	RGS	RGS					
				48 cm	RG	Res	RG				
				RGS	$D\left(\begin{array}{c}120\\19\end{array}\right)$		Rese	F GS			
				RGS	Λ	RGS	N es				
				RGS	<u>A</u> 2	5 cm 1	RGS				

					10					
13 In th	ne figure,	ABCD is a	square a	and <i>ABF</i> i	s an isosc	eles triang	gle so that	AB = AF,	AEC and	
RGS	· ale sua	ight mics.								
			A	220	RGS		RGS			
			RGS	42						
			RGS	RGS	E	F				
			RGS	/	RGS	RGS				
			D	RGS		\square_c				
Give	en that ∠	(EAF = 22)	RGS							
R (i)	find \angle	BFA.								[3]
(ii)	show th	nat ΔADF	is an iso	sceles tria	ingle, and	hence fin	d ∠ <i>CDF</i>			[3]
(iii)	find \angle	AEF .								[2]
State	e your re	asons clear	ly. GS							
		RGS.								
RGS	RGS	RGS	RGS	RGS	RGS	RGS	RGS	RG5	RG5	RGS

RGS	Raffles Girls	' School (Se	econdary)				2019 Year 1	I Mathemat	ics End of Y	ear Assessi [Turn C	nent Dver
RGS	RGS	RGS	RGS	RGS	RGS	RGS	RGS	RGS	RGS	RGS	RGS
					RGS	RGS	RGS				
					RGS	II ANK PA	CF				
						RGS					

						12 12					
	14 Kev	rin bough	it a new c	ar priced a	nt \$97 00	0. He is r	equired to	pay 20%	of the s	elling pric	ce as
	2.78	down pa	e interest	e takes a per annum	. He plan	the remains to repay	the loan	over 5 yea	a bank v urs.		irges
	(I) RGS	Showt	nat his mo	onthiy payi	ment is \$	14/3.11, (correct yo	ur answer	to the he	arest cent	s. [3]SS
	(ii)	Hence,	find the a	umount tha	t Kevin 1	needs to pa	ay on the	final mon	th at the e	end of 5 ye	ears.
											r—1
	K63 ;										

- 15 Kelvin went jogging at a park. He first ran up a slope for 10 minutes, followed by jogging on flat ground which is 3 km long at a speed of 0.2 km/min before running down another slope for 8 minutes.
- **RGS** The ratio of Kelvin's speed while running up the slope, on the flat ground and down the slope is 2 : 4 : 5.
 - (i) Find Kelvin's speed while going up the slope in kilometres per minute. [1]
 - (ii) Given that Kelvin rested for 2 minutes after going up the slope, find the average speed of his workout, in kilometres per minute, correct your answer to 2 decimal places. [2]

PCS	Raffles Girls	' School (Se	econdary)				2019 Year .	l Mathemat	ics End of I	ear Assessi Turn C	nent Iver
RGS	RGS	RGS	RGS	RGS	RGS	BGS	RGS	RGS	RGS	RGS	RGS

RG	Plan	Plan	Summary	,865	Res,	RGS	RGS	865	RGS	RG
RG	A	Inter \$100	est of 4% immediate	per ann e cash vo	um comp ucher.	ounded	every 3	months ove	r 2 years	with
RG	В	Simp	ole interest	of 4.25%	ó per annu	m over	2 years.	RGS	RGS	RG:
RG	Justify	which	plan shou	ld Kathei	rine inves	t in.	RGS	RGS	RGS	RG

						RGS 15					
	17 ^{RGS}					RGS	RGS				
	RGS					RGS -					
	RGS				RGS						
	0	2	<u> </u>	<u> </u>	<u> </u>	<u> 8 </u>	• 1	2	14	<u> </u>	18 65
	RGS	RGS	RGS	Numb	er of taxi	rides (in h	undreds)	RGS	RGS	RGS	RGS
	The Sing Each	dot diagi apore on 1 dot repr	am show a particul esents a r	s the nun ar Tuesda egion in S	nber of ta y. Singapore	axi rides to and the n	aken by 1 Jumber of	esidents taxi ride	living in s taken ar	32 region e rounded	is in I off
	to th taxi :	e nearest rides on t	hundred. hat Tuesd	For exam ay.	ple, the t	two dots o	on 10 repr	esent two	regions 1	that had 1	000
	(a) (b)	How ma What is	any region	is have at	least 700	taxi rides	on that T	uesday?	range fro	m 400 to	[1] GS 800
	(c) (c)	inclusiv State a p	ely?	eason for t	the 2 regi	ons to hav	e zero tax	i rides.		RGS	[2] GS [1]
											RGS
						RGS					
RGS	RGS	RGS	RGS	RGS	RGS	RGS	RG5	RG5	RGS	RGS	RGS
RGS	Raffles Girls	' School (Se	econdary)	RGS	RGS	RGS	2019 Year .	l Mathemat	tics End of I	ear Assess [Turn (ment Dver

						16					
	Answer t	he whole	of this q	uestion o	n a piece	of graph	paper				
RGS	18 (a)	The tax	ti fare, \$y,	charged	by Taxi C	ompany A	A, for a jo	ourney is g	given by j	v = 4 + 0.5	5x,
		in the f	ollowing	table:			correspo.			iu y are gi	RGS
				~	2	0.00 1	2000	20		DCS	
				x y	5.1		2 0	15			
		RGS (i) Fi	ind the val	RGS							RGS [1]
		(i) U (ii) U ur	sing a sca nit on the	le of 1 cm y-axis, dra	to repres aw the gra	sent 2 unit uph of $y =$	s on the x = 4 + 0.55.	x -axis, and x for $0 \le 1$	11 cm to r $x \le 24.$	epresent	[3]
		(iii) Ez	xplain the	significat	nce of the	number 4	in the gi	ven conte	xt.RGS		[1]
	(b)	The cha	arges of T xplain wh	axi Comp at the nun	any B car ber 0 3 n	n be mode neans in fl	elled by the given of	ne equatio	n y = 6 +	0.3x.	[1]]]]
		(i) L2 (ii) B3	y adding a	another lin	ne on the	same axes	drawn ir	n (a), find	the solution	on to the	[*]
		si	multaneou	v = 4 + 0	ns:).55 <i>x</i>						[3]
				y=6+0).3x S						
		(iii) U tw	se your g vo compai	raphs to a nies.	advise yoi	ur friend v	who want	s to hire a	taxi from	one of th	ese [1]
					RGS	RGS					
					End	ot Paper	RGS				