

# Mathematics: analysis and approaches HL

## Updates

All of the updates on this list have been made to the Online Course Book and may also be included in your Print Course Book, depending on when it was printed.

Chapter 1			
Section	Page	Exercise / question	Correction
In chapter	3	Before you start, Q3	- '+' should be '='
In chapter	40	Ex1E, Q7	remove brackets around $n-1$ (twice)
In chapter	44	Ex1F, Q9	add 'with $m > n$ ,' after 'integers'
In chapter	51	Ex1G, Q2h	Should be "for all", not "or all"
In chapter	61	Ex1I, Q9	add missing +
In chapter	62	n/a	Line 23: add superscript -1
In chapter	63	Investigation 20, table	where the coefficients 1, -3, 6, -10... are shown in the table, they are incorrect. They should all be positive: 1. 3. 6. 10...
In chapter	65	Ex1J, Q1 a and c	remove brackets under fraction
In chapter	65	Ex1J, Q2a	remove brackets under fraction
In chapter	68	Chapter review, Q13c	four women
In chapter	69	ESQ, Q24a	remove brackets under square root
In chapter	69	ESQ, Q23	in the question the very last part: ...is divisible by 6 for all $n$ $+n \{ \}^{\{+ \}}$ $\{3^r\}$
Answers	755	Ex1A, Q1c	
Answers	755	Ex1A, Q4a	remove commas
Answers	755	Ex1A, Q4b	$0-1+4-9+16-25$
Answers	755	Ex1A, Q4c	replace commas with +
Answers	755	Ex1A, Q5a	replace commas with +
Answers	755	Ex1A, Q5d	$-2-1+1+5+13$
Answers	755	Ex1A, Q5e	replace commas with +
Answers	756	Ex1C, Q11	subscript $x$ should be subscript infinity
Answers	756	Ex1C, Q15	add 1 between = and -
Answers	756	Ex1C, Q15	$-4 < x < 0$
Answers	756	Ex1D, Q3a	30
Answers	756	Ex1D, Q3b	19
Answers	756	Ex1D, Q5b	<change top of fraction to: $3(7+3\sqrt{2})>$

Answers	756	1D, Q5c	Change ... is less than 1 to... lies between -1 and 1.
Answers	756	Ex1D, Q5d	0.996
Answers	756	Ex1D, Q5e	1
Answers	756	Ex1D, Q6a	70.61
Answers	756	Ex1D, Q6b	1695
Answers	756	Ex1D, Q8 a and b	change dollar signs to euros
Answers	757	Ex1E, Q7	=37/210
Answers	757	Ex1F, Q2	m=a, n= b
Answers	757	Ex1F, Q3	rational (not irrational)
Answers	758	Ex1F, Q8	some translation of p and q
Answers	758	Ex1F, Q9	add and m>n
Answers	758	Ex 1G, Q1a-e	incorrect answers printed - now provided from worked sols
Answers	758	Ex 1G, Q2a	add ^+
Answers	758	Ex 1G, Q2b	add ^+ (twice)
Answers	758	Ex 1G, Q2c	add ^+
Answers	759 - 760	Ex 1G, Q2e and g-l	Updated to reflect positive integers
Answers	760	Ex1G, Q3c	P(1) is true, last line on page should be $(k+1)^2 (2(k+1)^2-1)$
Answers	761	Ex1G, Q3c	positive integers
Answers	761	Ex1G, Q3d	statement added to end of answer
Answers	761	Ex1H, Q10d	294
Answers	761	Ex1H, Q12	37800
Answers	761	Ex1I, Q2a	$3360a^6 b^4$
Answers	761	Ex1I, Q2b	$880a^5$
Answers	761	Ex1I, Q2c	$-448x^2y^3$
Answers	761	Ex1I, Q3	subscript 8 should be subscript 4
Answers	761	Ex1I, Q4	last line, add =
Answers	762	Chapter review, Q1	remove - before 1/9
Answers	762	Chapter review, Q1	delete 81, 9, 1; add $u_4 = 1/9$
Answers	762	Chapter review, Q2	1150
Answers	762	Chapter review, Q3	a=48, b=12, c=-24, d=-36
Answers	764	Chapter review, Q13b	233239
Answers	764	Chapter review, Q13c	91
Answers	764	Chapter review, Q14f	P(2); third line add $=a^2+ab-ab+b^2$
Answers	765	ESQ, Q22	6p becomes 12p in two places; 3p becomes 6p in one place
Answers	765	ESQ, Q24a	remove brackets x3

## Chapter 2

Section	Page	Exercise / question	Correction
In chapter	77	Investigation 2	Remove green dots on graph
In chapter	91	Ex 2E	Find the domain <b>and range</b> of these functions and ...
In chapter	92	Example 12, last line	Substitute the 3 periods with an equal sign instead
In chapter	100	Exercise 2I, 2a	Delete the negative on the 2.

In chapter	103	n/a	Line 2: i.e. for any $a, b \in A, f(a) = f(b) \iff a = b$ .
In chapter	107	Example 24, c	insert minus before $(x+6)^2$
In chapter	110	Example 26, LHS, a ii	Insert minus before 1
In chapter	110	Example 26, LHS, b	Changes to the explanation in part b
In chapter	132	Example 38	Use different colors for all the graphs in black, and keep the same color for the graph from picture to picture $f(x)$ has no real <b>zeros</b>
In chapter	143	ESQ, Q9a	
In chapter	143	ESQ, Q9-14 and 16	Remove calculator icon
In chapter	143	ESQ, Q16	Plus should become minus
Answers	766	Ex2A, Q2d	$\leq$ become $<$ ( $x^2$ )
Answers	766	Ex2A, Q2f	first two $\leq$ become $<$
Answers	767	Ex2E, Q2	$\geq$ becomes $>$
Answers	767	Ex2E, Q2	add asymptotes: $x=3, x=-3, y=0$
Answers	767	Ex2E, Q3	$\leq$ becomes $<$
Answers	767	Ex2E, Q4	$\geq$ becomes $>$
Answers	767	Ex2E, Q7	add negative to $1/2$
Answers	767	Ex2E, Q8	remove underline from $>$ ; change final part to both answers valid in each case
Answers	768	Ex2H, e,f,g	replace answer with $-4.54 < x < -3.30$ ; $0.303 < x < 1.54$ . Graph remains.
Answers	768	Ex2I, Q2d	Add to the answer: 2 hours.
Answers	769	Ex2M, Q7	Odd, one-to-one
Answers	769	Ex 2L, Q1b	fourth line, add $(x)$ after $f$
Answers	769	Ex2M, Q2bi	fourth line, add $(x)$ after $f$
Answers	769	Ex2M, Q2bii	replace final 2 with $\sqrt{2}$
Answers	769	Ex2M, Q3bii	Before each expression, add $f^{-1}(x)=$
Answers	769	Ex2N, Q2a-f	Change to $f^{-1}(x-1)$
Answers	771	Ex2Q, Q4b	Change 4 to 3
Answers	771	Ex2Q, Q4c	replace $5/4$ with 1
Answers	771	Ex2Q, Q4d	$= f(-2x)$
Answers	771	Ex2Q, Q4e	Change entire answer to: Horizontal dilation factor $1/3$ , followed by vertical dilation factor 2, then a horizontal translation of 4 units in the positive $x$ -direction, and a vertical translation of 1 unit in the positive $y$ -direction.
Answers	771	Ex2R, Q2a	
Answers	771	Ex2R, Q2b	Delete what is there and replace with: $y = 2f(2(x - 4)) + 1$
Answers	771	Ex 2S, Q1	replace graph
Answers	771	Ex2Q, Q3c	subscript $f$ should be subscript $g$
Answers	771	Ex2Q, Q4f	$y = -f(2x)$
Answers	772	Ex 2S, Q2-5	replace graphs
Answers	772	Chapter review Q4	Translate the graph of $y = f(x)$ 3 units in the negative $x$ -direction, reflect in the $y$ -axis, vertical stretch by a factor of 2, vertical translation of 4 units in the positive direction.

Answers	772	Chapter review Q5	Change answer to: $-3 \leq x \leq 1/3$
Answers	773	Skills check	extra answer deleted to match questions
Answers	773	ESQs, Q16	question not in text? Renumber 17 as 16

### Chapter 3

Section	Page	Exercise / question	Correction
In chapter	150	n/a	First line should be $x^2 + 6x$
In chapter	153	Ex 2b, Q2b	The equation must be $x^2 - 3x + 1 = 0$
In chapter	163	n/a	Change last sentence: Notice that the modulus of a complex number is always a non-negative real number.
In chapter	175	n/a	Insert the polynomial definition before the coefficients
In chapter	180	n/a	brackets corrected in Hint box
In chapter	187	Example 23	Updated screenshot
In chapter	189	Example 30	First line, add leading coefficient of 2
In chapter	194	Ex 3M, Q3	Third line, numbers 1,2,3, and 4 should be subscript rather than superscript
In chapter	195	n/a	In the fourth line the name is Scipione <b>del</b> Ferro, not dal Ferro
In chapter	197	Example 34	Graphic amended for clarity.
In chapter	200	Ex3O, Q1d	Insert $\geq$ before 0
In chapter	200	Ex3O, Q1g	Insert $<$ before 0
In chapter	201	n/a	Hint box: In the second line change to: "where x can be any value, whilst y is a value dependent on x."
In chapter	205	Example 41	Insert GDC screenshot for clarity
In chapter	207	n/a	In the working box with coefficients, in the fourth block, the first equation in the middle must be $v+z=1 \rightarrow 1+(-1)=1$
In chapter	212	n/a	Remove redundant point from chapter summary (14th bullet)
In chapter	215	ESQ, Q17a	4 should be superscript
Answers	773	Skills check	Extra answer deleted to match questions
In chapter	774	Ex 3A, 4	Remove duplicated $x=5/2$ for clarity
In chapter	774	Ex3B, Q2a	Corrected answer is -2.41, -0.414
In chapter	774	Ex3C, 1f	Delete - question not in book
Answers	774	Ex3H, Q1f	Answer should be 0 (not 1)
Answers	775	Ex3I, Q1b	Final digit should be 3 not 2
Answers	775	Ex3K, Q1c	Insert 2 before $x + 1$ , $r = 4$
Answers	775	Ex3K, Q2	Final part should be $5x^2 - 5x - 1$
Answers	775	Ex 3L, Q5d	4i should be 2i
Answers	775	Ex6 a,b,c	z = inserted where required

Answers	775	Ex3N, Q1a	$x = -2, -1, 2$
Answers	775	Ex 3O, 1a,b,d,f,g	Updates to answer ordering and s.f
Answers	775	Ex3O, Q1f	$x < -5/3, -1/2 < x < 7/2$
Answers	775	Ex3O, Q2	$x < 1.17$
Answers	775	Ex3O, 4a-c	a) $-1.89 \leq x \leq 1, x \leq 1.79$ b) $x < -1.10, 0.747 < x < 1.27$ c) $-2.06 < x < -0.889, -0.505 < x < 0.505, x > 0.869$
Answers	776	Ex3Q, Q2	New answer provided
Answers	776	Ex3R, Q1 a and b	$m = -2; m = 2$ or $m = 3$
Answers	776	Ex3R, Q2a	$k = 6$

## Chapter 4

Section	Page	Exercise / question	Correction
In chapter	222	Example 1b	From the table of values... add 'on your GDC'.
In chapter	227	International Mindedness Box	The sentence is incomplete... of the form , known as the witch of Agnesi.
In chapter	227	Exercise 4B example 2	Instead of $x=2$ it should read $x \leq 2$ .
In chapter	229	Graph	The unlabeled green point should be labeled (1,4).
In chapter	231	Example 7	Line directly above the graph, add 'using your GDC'.
In chapter	243	Ex 4F, Q1f	delete ' $(x)=1$ and replace with $f'(1)$
In chapter	244	n/a	2nd line after proof: Change $f(x)-f(x)$ to $f(x)-f(c)$ .
In chapter	250	n/a	Reflect box, Suppose $f$ is a <b>constant</b> linear multiple of ..
In chapter	255	n/a	Under 'from the left', change $x \rightarrow 0$ to $h \rightarrow 0$
In chapter	252	Investigation 13, 1	Change to $dy/dx$
In chapter	261	E4L, Q9	replace with function from worked solutions
In chapter	294	4V, Q5	27 cm <sup>3</sup> should be changed to 27 m <sup>3</sup> .
Answers	777	Ex 4b, Q2	Continuous
Answers	777	Ex 4b, Q3	Not continuous
Answers	777	Ex 4b, Q5	Continuous at $x=1$ , not continuous at $x=-2$
Answers	777	Ex 4b, 8b	not continuous at $x=1$
Answers	778	Ex 4D, Q5	remove underline from $<$
Answers	778	Ex 4G, Q2	$y=x-4$
Answers	778	Ex 4H, Q1d	The $x$ is missing in the 4 <sup>th</sup> term
Answers	778	Ex 4H, Q1i	replace bottom of last fraction with $<\text{replace with } 2\sqrt{7}>$ ; replace top of fraction with 15
Answers	778	Ex 4E, Q3a	$6a+2$
Answers	778	Ex 4I, Q1d	Place a negative sign in front of the answer.
Answers	778	Ex 4I, Q2	$y=-6x+5$ .
Answers	778	Ex 4I, Q3	Change answer to: $x+2y-5=0$
Answers	779	Ex 4K, Q2e	new answer provided
Answers	779	Ex 4L, Q6	change to $p=2$ (the rest is fine)

Answers	779	Ex 4M, Q3ei	. i. (0,-1) is a maximum and (2,3) is a minimum
Answers	779	Ex 4M, Q3eii	$x < 0$ ; $x > 2$
Answers	779	Ex 4M, Q3eiii	$0 < x < 2$ ( $x \neq 1$ )
Answers	779	Ex 4M, Q3eiv	The turnings points are local.
Answers	779	Ex 4M, Q4	Change to: $f_{\min} = -17$ ; $f_{\max} = 7$
Answers	779	Ex 4M, Q7	$a = -3$ ; $b = -9$ ; $c = 12$
Answers	779	Ex 4O, Q6	a (1,0); b. $x > 1$ ; c. $x < 1$
Answers	779	Ex4K, Q4	17/80 becomes 3/80
Answers	779	Ex 4M, Q1 and 2	small changes throughout
Answers	779	Ex 4M, Q3e	small changes throughout
Answers	779	Ex 4M, Q6	deleted (0,0)
Answers	780	Ex 4R, Q1	80,000
Answers	780	Ex 4R, Q4	$x = 6$
Answers	780	Ex 4S, Q4a	272
Answers	780	Ex 4P, Q1b	new graph provided
Answers	780	Ex 4R, Q7	$A = 0.0554 \text{ m}^3$
Answers	780	Ex 4R, Q8	1240
Answers	780	Ex 4R, Q11	16x20cm
Answers	781	Ex 4S, Q6	\$300; 220
Answers	781	Ex 4T, Q3	128m: 10.2s
Answers	781	Ex 4T, Q4ei, ii	i. Change $4.5 < t < 9$ to $6 < t < 9$ ; ii. Add: $4.5 < t < 6$
Answers	781	Ex 4U, 1a, 1e, 1f	new answers provided
Answers	781	Ex 4V, 1b	new answer provided
Answers	781	Ex 4V, Qb3a	-51
Answers	781	Ex 4V, Q5	2
Answers	781	Ex 4V, Q7	- <set as fraction> $\frac{1}{5} \text{ cm s}^{\text{superscript}} - 1$ (format as answer to Q10 below)
Answers	781	Chapter review, Q2b	$\frac{5}{8}$ <fraction>
Answers	781	Chapter review, Q9a	new answer provided
Answers	782	Chapter review, Q13d	delete second part
Answers	782	Chapter review, Q14 b I and ii	new answer provided
Answers	782	Chapter review, Q22	6
Answers	782	Chapter review, Q17	$-8x + 7y + 1 = 0$
Answers	782	Chapter review, Q30d	22.9

## Chapter 5

Section	Page	Exercise / question	Correction
In chapter	307	n/a line 6	In box of number extra spac3 between 8 and 3
In chapter	311	n/a	In sampling techniques, updates to definitions of stratified and quota sampling
In chapter	332	n/a	In stem and leaf diagram there should be vertical line between stem and leaf
In chapter	332	Exercise 5D, Q6	remove gaps in histogram
In chapter	339	Exercise 5F Q3	delete part b

In chapter	341	n/a	Replace "unbiased estimator for the population" with "sample". In the formula replace $\mu$ with $\bar{x}$
In chapter	342	Example 9	Update with $\bar{x}$
In chapter	350	Example 11	On the graph, it should say $f(x)$ not $f_1(x)$
In chapter	352	Example 13	In the white box, the estimated line should be $Y = 0.538...(75) + 38.7...$
In chapter	360	Chapter review, Q7b	Deleted
In chapter	361	Chapter review, Q11 and 12	remove calculator icon
In chapter	362	ESQs Q18	The r value should be to 3 significant figures change to $r = 0.870$ (3 s.f)
Answers	784	Skills check	the median lies in the $15 < x < 20$ interval.
Answers	785	Exercise 5B, Q3c	penultimate mean is 2.6667
Answers	785	Exercise 5D, Q3b	bottom right cell: 0.0625
Answers	786	Exercise 5D, Q4a	45
Answers	786	Exercise 5D, Q4b	\$166.78
Answers	786	Exercise 5D, Q5	18 items
Answers	786	Exercise 5F, Q1d	mean = 13.2941
Answers	786	Exercise 5F, Q3a	SD = 2.6551g
Answers	786	Exercise 5G, Q2	Mean = 460.16, SD = 18.72538
Answers	786	Exercise 5G, Q4a	replace box and whisker with histogram
Answers	786	Exercise 5H, Q4cii	0.69
Answers	786	Exercise 5H, Q5aai	8
Answers	787	Exercise 5H, Q5b	change to working
Answers	787	Chapter review, Q7	Deleted part b, missing answers added and renumbered for parts c-h
Answers	787	Chapter review, Q8-end	extra answer deleted and questions renumbered
Answers	788	Chapter review Q9	penultimate cell = 5.76

## Chapter 6

Section	Page	Exercise / question	Correction
In chapter	371	n/a	swap position of B and C in both diagrams
In chapter	372	Example 2	The length PR should be written rounded to 3 Significant figures 7.36cm
In chapter	377	Example 4	Give final answer to 3 significant figures (62.8 litres)
In chapter	390	Exercise 6E, Q4	Given that $\theta$ is reflex... (rather than obtuse)
In chapter	396	Exercise 6H, Q2	add 'speed' to the question
In chapter	403	Exercise 6K, Q3f	change question to: $2\cot\theta\cos\theta + 7 = 7\operatorname{cosec}\theta$
In chapter	407	Example 25	Answers are incorrect, should be 0, 40.6, 139, 180 (all degrees)
In chapter	414	Investigation 7	On line 3 remove horizontal line of symmetry and add "principal axis"
In chapter	418	Inverse trig functions	Rewrite as: Equations of the type " $\sin x = \frac{1}{2}$ " arise frequently in mathematics.

In chapter	418	Inverse trig functions	After $\sin x = \frac{1}{2}$ on line 5 it should read $\arcsin(\sin x) = \arcsin \frac{1}{2}$
In chapter	418	n/a	remove the line $f^{-1} \circ f(x) = 1$
In chapter	429	Exercise 6U, Q3c	Deleted
In chapter	432	Example 43	Remove the little c and after write (radians)
In chapter	438	Chapter review, Q14, 16-20	remove calculator icon
In chapter	439	Chapter review, Q21 and 23	remove calculator icon
Answers	789	Skills check, Q1	250cm sq
Answers	789	Exercise 6A, Q2a	(0.5, 1.5, 3)
Answers	789	Exercise 6A, Q4a	right hand point should be labelled 'c' not 'b'
Answers	789	Exercise 6A, Q4a	The midpoint of BC should be M instead of F
Answers	789	Ex6A, Q4b	56.3
Answers	789	Ex6A, Q4c	46.7
Answers	789	Exercise 6A, Q5	17.1
Answers	789	Exercise 6A, Q6b	54.7
Answers	789	Exercise 6A, Q6c	35.3
Answers	789	Exercise 6A, Q6d	24.1
Answers	789	Exercise 6A, Q7b	5.7
Answers	789	Exercise 6B, Q1b	77.6
Answers	789	Exercise 6B, Q1c	84.8
Answers	789	Exercise 6B, Q1f	$V = 905 \text{ cm}^3$ , $A = 452 \text{ cm}^2$
Answers	789	Ex6B, Q5	$4.32 \text{ cm}^3$
Answers	789	Exercise 6B, Q6	$2550 \text{ cm}^3$
Answers	789	Exercise 6C, Q2c	150
Answers	789	Exercise 6C, Q3i	0.654
Answers	789	Exercise 6C, Q3j	0.01
Answers	789	Exercise 6C, Q4d	80.8
Answers	789	Exercise 6c, Q5a	$(\pi - 1)/2$
Answers	789	Exercise 6D, Q7	$78.54 \text{ cm}^2$ ; 36.35 cm
Answers	789	Exercise 6D, Q7	Psemi = 36.4 cm, change in radius = 2.93 cm
Answers	790	Exercise 6E, Q2C	-0.9204, 2.74
Answers	790	Exercise 6E, Q3a	36.9, 143.1
Answers	790	Exercise 6E, Q3c	293, 113
Answers	790	Exercise 6E, Q4	-4/5, -4/3
Answers	790	Exercise 6F, Q9	5.856, 2.714, 8.997, 12.139
Answers	790	Exercise 6G, Q1a	$Q = 115.75$
Answers	790	Exercise 6G, Q1c	$A = 30.8^\circ$ , $B = 125.1^\circ$ and $C = 24.1^\circ$ .
Answers	790	Exercise 6G, Q4	18.43; 101.57
Answers	790	Exercise 6H, Q1c	$b = 13.16 \text{ cm}$
Answers	790	Exercise 6H, Q2	38s
Answers	790	Exercise 6I, Q1	197.37
Answers	790	Exercise 6I, Q2	1063
Answers	790	Exercise 6K, Q4c	insert $\wedge 2$
Answers	792	Exercise 6M, Q1c	fourth line on p792, add opening bracket

Answers	792	Exercise 6M, Q7c	$\pi, \pi/2, 3\pi/2$
Answers	792	Exercise 6N, Q1	final line of answer, swap superscript + and -
Answers	792	Exercise 6N, Q4c and d	add amplitude
Answers	792	Exercise 6O, Q1a and b	add vertical shift
Answers	792	Exercise 6O, Q2d	$1/60$
Answers	792	Exercise 6O, Q3a	$b = \pi/6$
Answers	792	Exercise 6O, Q3c	$16.4 < t < 24$
Answers	792	Exercise 6O, Q4c	-1
Answers	793	Exercise 6P, Q3c	change 'domain' to 'range'
Answers	793	Exercise 6Q, Q1a	0.464
Answers	793	Exercise 6R, Q1b	missing x added
Answers	794	Exercise 6R, Q2c	delete extra '3'
Answers	794	Exercise 6T, Q3c	answer replaced
Answers	794	Exercise 6U, Q1b	answer replaced
Answers	794	Exercise 6U, Q3c	deleted
Answers	795	Exercise 6V, Q1a	$y = -1/3 (x - \pi/3)$
Answers	795	Exercise 6V, Q1b	throughout answer '0.101' becomes 2.01 and '1.147' becomes '1.47'
Answers	795	Exercise 6V, Q2b	1.531 becomes 2.03
Answers	795	Exercise 6V, Q2c	56.44
Answers	795	Exercise 6V, Q4a	add 2 after fraction
Answers	795	Exercise 6V, Q4b	$y = 5.14x - 1$
Answers	795	Exercise 6W, Q3a	0.024
Answers	795	Exercise 6W, Q5a	0.00829
Answers	795	Exercise 6W, Q7	0.0212
Answers	795	Chapter review Q4b	first angle = 289.5
Answers	795	Chapter review Q5	108 and -108
Answers	795	Chapter review Q10	$x = \pm 1$
Answers	795	Chapter review Q8b	293.2
Answers	796	ESQ, Q15b	3.1 should be 3.05; 30.9 should be 31.9
Answers	797	ESQ, Q22a	t-C becomes 3-c

## Chapter 7

Section	Page	Exercise / question	Correction
In chapter	450	Ex 7A, Q3	remove brackets around $3x^2 - 4$
In chapter	487	Ex 7F, Q5a	remove brackets under square root
In chapter	514	Chapter review, Q16-19	remove calculator icon
In chapter	514	ESQ, Q16	$2x$ should be superscript
In chapter	515	ESQ, Q20, 23-25	remove calculator icon
Answers	797	Ex7A, Q1e	remove $\int$
Answers	798	Ex7A, Q10	delete first minus
Answers	798	Ex7A, Q11c	Remove integral sign and the coefficient should be $3/5$
Answers	798	Ex 7A, Q12	$1 - \cos(2\theta + \pi/2)$
Answers	798	Ex7B, Q9b	first: $3\pi/2$

Answers	798	Ex7B, Q9c	4.13
Answers	798	Ex 7B, Q10	Graph under 7C belongs to exercise 7B - question 10
Answers	798	Ex 7B, Q2c	each 7 should be -7
Answers	798	Ex 7D, Q3a	delete $\log_2 x$
Answers	799	Ex 7D, Q9a	each 'e' should be '10'
Answers	799	Ex 7D, Q12 b and c	The answers for b and c should be interchanged
Answers	800	Ex 7F, Q5b	$\frac{4}{3}\ln\frac{3}{2}$
Answers	800	Ex 7F, Q8c	change 'x-intercepts' to 'turning points'
Answers	800	Ex 7F, 9d	$y = 0$
Answers	800	Ex 7F, Q10a	three roots
Answers	800	Ex 7F, Q10a	insert $x = -5\pi/4$ ,
Answers	801	Ex 7F, Q10d	mislabelled as a, corrected to d
Answers	802	Ex 7H, Q2	remove $\int$
Answers	802	Ex 7I, Q12	add: or $9/4$
Answers	803	Ex 7L, Q3	should be $(3\sin^2 x \sin 3x \dots)$
Answers	803	Chapter review, Q9a	not in range' becomes 'outside the domain'
Answers	804	ESQ, Q17a	$10^{(5x-1)} = 15$
Answers	805	ESQ, Q23a	insert missing integral symbols

## Chapter 8

Section	Page	Exercise / question	Correction
In chapter	528	Exercise 8C: 4a	$y = 2\sin y$ . Change to $x = 2\sin y$
In chapter	528	Ex 8C, Q5	$x = 0$ (not $y$ )
In chapter	532	Ex 8D, Q9	labels added to graph
In chapter	566	ESQ, Q10	remove calculator icon
In chapter	567	ESQ, Q14-15	remove calculator icon
Answers	806	Skills check, Q1b	1 (not 0)
Answers	806	Skills check, Q3b	superscript 2 on top of fraction
Answers	806	Ex 8A, Q2c	1.34
Answers	806	Ex8B, Q3	11.5 sq. units
Answers	806	Ex 8C, Q2e	brackets should be curved
Answers	806	Ex 8D, Q9a	units should be cm
Answers	806	Ex 8E, Q1c	insert $+-$
Answers	806	Ex 8E, Q2d	amended answer
Answers	807	Ex 8G, Q4 and 5	Q 4 answer should be deleted and 5 renumbered as 4
Answers	807	Ex 8G, Q4 (corrected numbering)	brackets added
Answers	807	Ex 8H, Q1e	Change $\frac{1}{2}$ to $\frac{1}{3}$ .
Answers	807	Ex 8H, Q2a	$y = x(-x\cos x + \sin x - \pi)$
Answers	807	Ex 8L, Q3	final line of answer amended to match WS
Answers	807	Ex 8L, Q5b	amended answer
Answers	808	Chapter review, Q2e	$5 \text{ over } 3$
Answers	808	Chapter review, Q2f	$2\pi - 4/3$
Answers	808	Chapter review, Q4d	add $+-$

## Chapter 9

Section	Page	Exercise / question	Correction
In chapter	581	Example 5	On the diagram of the cuboid the point next to notation M on the edge [CG] is missing.
In chapter	591	Example 13	Remove the letter M from the diagram of a parallelepiped.
In chapter	593	n/a	In the second box erase symbol = after AB.
In chapter	597	Example 19	wrong symbols for the scalar product $x$ becomes .
In chapter	598	Investigation 11	Formating the vector <b>a</b> in the last row should be the same as in the first four rows.
In chapter	604	Ex 9E, Q1a	wrong symbol for the angle.
In chapter	604	Ex9E, Q4	5 under sqrt should be 3
In chapter	617	Example 35	Wrong symbol in the first line
In chapter	621	Ex 9H, Q8	Square of the second term should be outside the modulus
In chapter	624	n/a	In the 8 <sup>th</sup> line after the example words plane and by are written together, you need to split them.
In chapter	627	n/a	In the second line of the example 44 the second letter m is missing
In chapter	628	Ex 9I, Q7	The very last number in the question should be bold, <b>0</b> since the vector product is a vector not a scalar.
In chapter	632	Example 49, part b	Comment in the right column is missing a letter perpendicular, it must be written: "Find the point of intersection F between the nernendicular line and the plane."
In chapter	633	Ex9K, Q2	second fraction should be $4-z/5$ and add part b
In chapter	634	Example 50	Change to: The courses meet when..."
In chapter	637	Example 53	in both columns at all six places, vector <b>w</b> must be written in small caps bold, not in capitals. as it is shown on the diagram.
In chapter	638	Ex 9L, Q3	The distance between the points is given in km and the time in the equations of the paths is given in minutes.
In chapter	642	n/a	Vector product: Geometric definition The last vector <b>n</b> must have no subscript index 0
In chapter	642	n/a	Properties of vector product. In the second property the last vector is <b>c</b> not <b>a</b> .
In chapter	644	Chapter review, Q4	have components that form arithmetic sequences with the common differences $\pm d$ .

In chapter	644	Chapter review	Questions 1-5 should be done without a calculator. Questions 6-10 can be done with a calculator.
In chapter	645		Q11-15, 17 remove calculator icon
In chapter	645	ESQ, Q14 and 15	pi must be uppercase
Answers	809	Ex9A Q2b, d, e g	add minus to start of answer
Answers	809-810	Ex9A and 9B	In 9A, the answers numbered 3-6 belong to 9B. In 9B, the answers numbers 3 and 4 belong to 9A.
Answers	811	Ex9C, Q2d	fifth line, = i
Answers	811	Ex9C, Q5ii	$xi+yj+(m+l)i+(n+p)j=a+(b+c)$
Answers	812	Ex9D, Q3	symbol and = should be before fraction
Answers	812	Ex9D, Q2c	denominator should be 31 not 61 in each case
Answers	813	Ex9E, Q3b	1.20 rad
Answers	814	Ex 9F, Q4a	$(1+2\mu)i+(5\mu-2)j$
Answers	816	Ex 9H, Q1a	$x(-2))=(9-10)=-1$
Answers	816	Ex 9H, Q2	final answer 23.3
Answers	816	Ex 9H, Q3b	final answer 3.74
Answers	818	Ex 9I, Q3	insert - before each 9
Answers	818	Ex 9I, Q6a and b	amended answer
Answers	819	Ex 9K, Q1a	x should be z
Answers	820	Ex9K, Q2	The answers at the back of the book are a
Answers	821	Ex 9L, Q2c and d	(1,3,9) b 1.12 or $64^\circ$
Answers	821	Chapter review Q1b	c) $t=5.57$ s d) 25.5 m
Answers	821	Chapter review Q2c,d,e	AB = 10/3 DC
Answers	822	Chapter review Q3c	c) $(4 \ 4 \ -1) \ d) -3 \ e) = 7.33$
Answers	822	Chapter review Q4	BP (not AB)
Answers	822	Chapter review Q7	$(2+d)$ in two places
Answers	822	Chapter review Q7	final answer = 63'
Answers	824	ESQ, Q15a	P(-2, 6, -4)

## Chapter 10

Section	Page	Exercise / question	Correction
In chapter	654	Diagram at bottom of the page	swap position of $z^*$ and $-z^*$ labels
In chapter	658	Example 6, part b	Left column should be aligned with the working of the part b, so the sentence: "Apply the formula for multiplication in the polar form." Must be aligned with the part b, not with working in the part a
In chapter	660	Investigation 4	in the table in the first column and first row erase i, it must be only z, not zi.
In chapter	660	Ex 10B, Q4	layout issue
In chapter	661	Example 8	the line before last in the working, replace word equal by opposite. It must be written: "...arguments are opposite or add up..."

In chapter	669	n/a	The first line after the definition box. The word different is missing. It must be written: "In the set of complex numbers, there are n different complex numbers..."
In chapter	677	ESQ, all questions	remove calculator icon
Answers	825	Ex 10A, Q2d	$(2\pi + \arctan(-20/21))$
Answers	825	Ex 10A, Q3	missing answers added
Answers	825	Ex10B, Q1c	17/14 rather than 45/14
Answers	826	Ex 10D, Q1c	128, not 64
Answers	826	Ex 10D, Q1d	amended answer
Answers	826	Ex 10E, Q3b	2/5, not 2
Answers	826	Ex 10F, Q2c	mislabelled as b, corrected to c
Answers	827	Chapter review, Q5-10	misnumbered, corrected
Answers	827	Chapter review, Q1	add minus sign
Answers	827	ESQ, all questions	misnumbered, corrected

## Chapter 11

Section	Page	Exercise / question	Correction
In chapter	682	Skills check, Q3b	number of students should be 38
In chapter	695	Example 6	Error in the % - Madi makes 35% (not 45%)
In chapter	728	ESQ, Q12	remove calculator icon
In chapter	728	ESQ, Q19	remove calculator icon
Answers	829	Skills check	missing answers added
Answers	829	Ex 11A, Q1 a and b	$a = 3/20$ , $b = 3/5$
Answers	830	Ex11A, Q7A	add labels to sets
Answers	830	Ex 11B, Q2biv	6/13
Answers	830	Ex 11C, Q6a	83.50%
Answers	830	Ex 11C, Q6b	6.06%
Answers	830	Ex 11E, Q2	6.2
Answers	830	Ex 11E, Q5b	3.75
Answers	830	Ex 11F, Q1a	2.375
Answers	831	Exercise 11J, Q3c	$b = 1.607$
Answers	831	Exercise 11J, Q4a	$SD = 23.152$
Answers	832	Exercise 11J, Q4b	Between 221.9g and 298.1g
Answers	832	Exercise 11J, Q5c	0.9545
Answers	832	Exercise 11J, Q6a	0.129
Answers	832	Exercise 11K, Q3	$\langle \sigma \rangle = 0.00898$
Answers	832	Chapter review, Q3	13

## Practice exam papers

Section	Page	Exercise / question	Correction
In chapter	747	Paper 1 Q6 and 7	wrong symbol under the limit
In chapter	747	Paper 1 Q6	final spelling of L'Hopital is wrong.

In chapter	749	Paper 2Q3	reword Q to 'where $t$ is time in seconds.'
In chapter	751	Paper 2 Q13	delete 'x measured in radians'
In chapter	752	Paper 3 Q1 a and b	question rewritten/reformatted for clarity
In chapter	753	Paper 3, Q2	corrected formatting
Answers	834	Paper 1 Q6 and 7	full workings added as question requires
Answers	835	Paper 3, Q1ciii	Let $P(n)$ ...
Answers	836	Paper 3, Q1d iv and e	answers added
Answers	836	Paper 3, Q2g	add + c
Answers	836	Paper 3, Q2f	answer corrected with full working