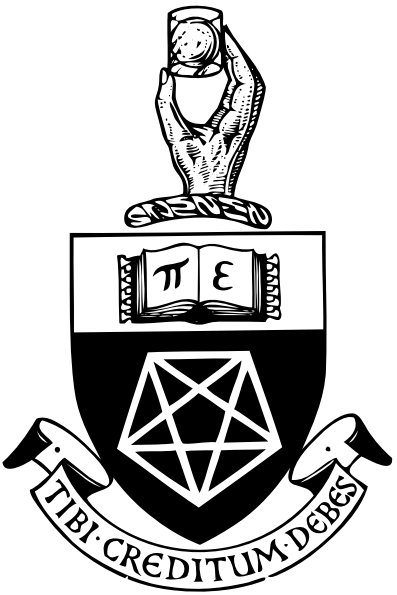
The Mathematical Gazette



Index to Volume 103
Numbers 556 to 558
2019

www.m-a.org.uk

THE MATHEMATICAL ASSOCIATION

https://doi.org/10.1017/mag.2020.40 Published online by Cambridge University Press

Index

to the

Mathematical Gazette

Vol. 103 2019

NO.	MONTH	PAGES
556	March	1 – 192
557	July	193 – 384
558	November	385 – 576

Editorials	Articles
Notes	Teaching Notes
Feedback	Correspondence
Problem Corner	Student Problems
Matters for Debate	Obituaries
Reviews	Editors

Articles

AUTHOR(S)	TITLE	PAGE
Ulrich Abel	Coincidence of the barycentre and the geometric centre of weighted points	409
Sadi Abu-Saymeh and Mowaffaq Hajja	More variations on the Steiner-Lehmus theme	1
Sadi Abu-Saymeh and Mowaffaq Hajja	New proofs of certain characterisations of cyclic circumscriptible quadrilaterals	401
A. F. Beardon	The three Steiner-Lehmus theorems	293
David Ben-Chaim, Yechiel Shalitin, Moshe Stupel	Historical mathematical problems suitable for classroom activities	12
Terence Coelho and Bahman Kalantari	How many real attractive fixed points can a polynomial have?	65
W. J. A. Colman	Borel's normal number theorem	77
Curtis Cooper	The Chinese Ring puzzle, the Crazy Elephant Dance puzzle, the *b*-Spinout puzzle, and Gray codes	431
Daniel Daners and Theresa Wigmore	Conics and a generalised conical pendulum	28
Nigel Derby	The continued search for sums of powers	94
Danilo R. Diedrichs	Archimedean, Logarithmic and Euler spirals – intriguing and ubiquitous patterns in nature	52
Stan Dolan	A diagram for inequalities of symmetric functions	461

https://doi.org/10.1017/mag.2020.40 Published online by Cambridge University Press

AUTHOR(S)	TITLE	PAGE
David Fraivert	New points that belong to the nine-point circle	222
David Fraivert	Pascal-points quadrilaterals inscribed in a cyclic quadrilateral	233
Bethany Fralick and Reginald Koo	Linear differential equations with constant coefficients	257
Paul Glaister	Alice's adventures in inverse tan land – mathematical argument, language and proof	388
Christopher D. Hollings	The need for closure	248
Hans Humenberger and Franz Embacher	Iterating circum-medial triangles	480
Martin Josefsson	Area formulas for certain convex quadrilaterals	20
Martin Josefsson	Eight formulae for the area of triangle *OIH*	471
Robert Kantrowitz and Michael M. Neumann	Launching a projectile to cover maximal area	277
Steven J. Kilner and David L. Farnsworth	Characterisations of the parabola	416
Robert L. Lamphere	A hyperbolic proportionality theorem and hyperbolic surveying problems	212
Athina Lorentziadi	Calculation of π with a needle	111
John D. Mahony	Locating parameters of interest in a conic section	196
K. Robin McLean	Latin square matrices and their inverses	265
Emrys Read	On the equation $x^2 + ry^2 = z^2$	87
Peter Shiu	The whole can be very much less than the sum of its parts	117
Andrew J. Simoson	The morphology of $\mathbb{Z}\left[\sqrt{10}\right]$	442
P. Stanley	An appraisal of Lalanne's nomogram	47
Moshe Stupel, Avi Sigler, Jay Jahangiri	Teaching proofs without words using dynamic geometry	204
Ken Surendran and Desarazu Krishna Babu	Expressions for rational approximations to square roots of integers using Pell's equation	101
Leonard van Wyk	Rounding versus truncation estimates in difference calculations	285
Leonard M. Wapner	The prescient power of indifference	41
John Wiorkowski	Finding the probability of a rare real world event	240

Editorial

AUTHOR	TITLE	PAGE
Gerry Leversha	An Appreciation	488

https://doi.org/10.1017/mag.2020.40 Published online by Cambridge University Press

Obituaries

AUTHOR	TITLE	PAGE
Irene Ault	Margaret E Rayner	385
Geoffrey Howson	Sir Michael Francis Atiyah, O.M.	193

Matter for Debate

AUTHOR	TITLE	PAGE
John D. Mahony	"DIYMathematics" v. "ThePackage"	128

Feedback

March	p. 171	Nick Lord

Correspondence

AUTHOR	TITLE	PAGE
Ian Stewart	On the review of the book *Significant Figures*	170

Notes

March	103.01 – 103.14
July	103.15 – 103.27
November	103.28 – 103.46

AUTHOR	NO.	TITLE	PAGE
Paul Belcher	103.14	The Party Hat Paradox	159
Eoghan Bradley and Mark McCartney	103.38	Four hundred years of the fractal coastline of Scotland	518
Günhan Caglayan	103.02	Proofs without words: identities in triangular numbers	131
Yongcheng Chen	103.39	A lemma to solve Langley's problem	521
Shane Chern, Shiqiu Qiu	103.24	Partitions, geometric progressions and a Putnam problem	337
Carlo Del Noce	103.34	Indefinite integration by parts as a translation of functions	508
Stan Dolan	103.29	Heronian triangles and squares in arithmetic progression	490
Tamsin and Tony Forbes	103.37	A sudoku puzzle with a big rectangular hole	517
David Gau	103.18	Trigonometric addition and subtraction formulas, a unified visual approach	314
Peter Giblin	103.12	A note on Problem 101.F	154
Russell A. Gordon	103.16	Variations on a theme	306
Russell A. Gordon	103.20	Geometric problems leading to power means	318
Martin Griffiths	103.27	A property of a particular unit-distance graph	353
Mowaffaq Hajja	103.22	On a problem of Sastry and a theorem of Serenus	328
Mehdi Hassani	103.30	Tests for divisibility by prime numbers	494
Stanley R. Huddy and Michael A. Jones	103.03	Quotients of hypotenuses of Pythagorean triples $(a, b, b + 1)$ and finite differences	132
G. J. O. Jameson	103.32	More on the gaps between sums of two squares	499

https://doi.org/10.1017/mag.2020.40 Published online by Cambridge University Press

AUTHOR	NO.	TITLE	PAGE
G. J. O. Jameson	103.44	The denominators of the Bernoulli numbers	541
Martin Josefsson	103.09	On the heights of a convex quadrilateral	145
Martin Josefsson	103.23	On Pitot's theorem	333
Emrah Kiliç, Talha Arikan	103.26	A proof of Clarke's conjecture	346
Paul Levrie	103.21	Closed form evaluation of a class of improper integrals	323
Nick Lord	103.36	Three footnotes to Cartwright's proof that π is irrational	514
Martin Lukarevski	103.43	An inequality arising from the inarc centres of a triangle	538
K. Robin McLean	103.04	Does Euclid's construction miss infinitely many primes?	135
Peter R. Mercer	103.06	Another approach to $\int_0^{\pi} \log(2 \sin u)\, du$	138
Samuel G. Moreno and Esther M. García-Caballero	103.05	Sums of integers	137
Robin Murphy	103.45	Improving elementary numerical integration using numerical differentiation	548
Purwanto	103.33	Conditions for the terms of an arithmetic sequence to form a multiplicative modular group	504
K. Razminia	103.35	Hölder's inequality revisited	512
Pedro Ribeiro	103.08	Another classic Fourier analysis proof of the Basel Problem	142
Aldo Scimone	103.40	Identifying golden and equilateral triangles that arise from the golden Arbelos	525
J. A. Scott	103.10	Around the nine-point circle	150
J. A. Scott	103.11	On the Spieker centre of a scalene triangle	153
J. A. Scott	103.17	An unexpected closed form revisited	312
J. A. Scott	103.42	The Feuerbach hyperbola revisited	536
Peter Shiu	103.07	More on slowly convergent, or divergent, series	140
Peter Shiu	103.31	Factorising numbers with oracles	495
P. Stanley	103.46	A four-hundred year calendar	556
Paul Stephenson	103.15	When is the sum of the first n consecutive odd cubes a square?	305
K. B. Subramaniam	103.28	On a link between Triangular and Fibonacci numbers	489
Mieczyslaw Szyszkowicz	103.13	Squaring the circle by using proportion	156
Joseph Tonien	103.01	New Year identities for 2019	130
Francisco Javier González Vieli, Marion Maillard	103.41	A spatial characterisation of Pascal limaçons	531
Raymond Viglione	103.25	An extension of Thébault's second problem	343
Horia Vîjîtu	103.19	Bernoulli's inequality for negative exponents	316

Teaching Notes

Frank A. Greco	How is the scalar product derived?	357
Nick Lord	Separating the effects of air resistance and restitution	163
Nick Lord	More equal volumes of revolution	168
Owen Toller	Partial fractions and telescoping series	165

https://doi.org/10.1017/mag.2020.40 Published online by Cambridge University Press

Reviews

AUTHOR	TITLE	REVIEWER	PAGE
Johnny Ball	Wonders beyond numbers: a brief history of all things mathematical	Peter Giblin	184
Tony Barnard and Hugh Neill	Discovering group theory	*Owen Toller*	368
Robin Bevan, Paul Metcalf and Chris Pritchard	Leadership to count on	*Andy Ashworth Jones*	570
Fabio Silva Botelho	Real analysis and applications	*Peter Shiu*	371
Stephen Boyd and Lieven Vandenberghe	Introduction to applied linear algebra	Owen Toller	573
Steve Butler, et al (eds.)	Connections in discrete mathematics: a celebration of the work of Ron Graham	*David Hopkins*	374
Eugenia Cheng	How to bake Pi	*Adrian Hemery*	183
Eugenia Cheng	The art of logic in an illogical world	*Graham Hoare*	189
William Dunham	The calculus gallery	*Mark Hunacek*	372
Richard Earl	Towards higher mathematics, a companion	*Owen Toller*	182
Alain Goriely	Applied Mathematics, a very short introduction	*Peter MacGregor*	376
Daniel Greiser	Exploring mathematics: problem-solving and proof	*Peter Hall*	381
Robert C. Gunning	An introduction to analysis	*John Baylis*	369
Peter Higgins	Professor Higgins's problem collection	*John Baylis*	190
Andrew Jobbings	Intermediate problems	*Tim Morland*	382
Keith Kendig	Never a dull moment: Hassler Whitney, mathematics pioneer	*Peter Giblin*	571
James Kirkwood	Mathematical physics with partial differential equations	*Mark Hunacek*	379
Darren Macey and Will Hornby	Teaching statistics	*Owen Toller*	377
Eli Maor	Music by the numbers	*Owen Toller*	186
Angelo Alessandro Mazzotti	All sides to an oval	*Owen Toller*	572
A. K. Nandakumaran, et al	Ordinary differential equations, principles and applications	*S. Collier Coutinho*	370
Scott E. Page	The model thinker	*Owen Toller*	376
Chris Pritchard	A common family weakness for statistics	*Gerry Leversha*	188
Terry Rudolph	Q is for quantum	*Ken Zetie*	185

https://doi.org/10.1017/mag.2020.40 Published online by Cambridge University Press

AUTHOR	TITLE	REVIEWER	PAGE
Henry Segerman	Visualizing mathematics with 3D printing	*Joel Haddley*	382
Ian Stewart	The beauty of numbers in nature	*Ian Anderson*	368
Leonard Susskind, Art Friedman	Special relativity and classical field theory	*Michael Jacoby*	378
Robin Wilson	Combinatorics: a very short introduction	*Dominic Rowland*	375

Student Problems

Numbers	2018 – 5 & 6	2019 – 1 & 2	2019 – 3 & 4	2019 – 5 & 6
Statement	**102** pp. 551-552	**103** p. 179	**103** p. 365	**103** p. 567
Solutions	**103** pp. 180-181	**103** pp. 366-367	**103** pp. 568-569	**104**

Problem Corner

Numbers		**102** E, F, G, H	**102** I, J, K, L
Statements		**102** p. 355	**102** p. 543
Solutions		**103** pp. 173-178	**103** pp. 360-364
Numbers	**103** A, B, C, D	**103** E, F, G, H	**103** I, J, K, L
Statements	**103** p. 172	**103** p. 359-360	**103** p. 559
Solutions	**103** pp. 560-566	**104**	**104**

Cover Pictures

	Image	*From*
March	A nautilus	Archimedean, Logarithmic and Euler spirals – intriguing and ubiquitous patterns in nature
July	The R. A. Fisher window Caius College, Cambridge	Latin square matrices and their inverses
November	Alice and the Cheshire cat	Alice's adventures in inverse tan land

https://doi.org/10.1017/mag.2020.40 Published online by Cambridge University Press

The 2019 *Gazette* editorial team

Editor	Dr Gerry Leversha
Production Editor	Mr Bill Richardson
Reviews Editor	Mr Owen Toller
Problem Corner Editor	Mr Nick Lord
Student Problem Corner	Dr Stan Dolan
Assistant Editor	Mr Tom Roper
Proofreaders	Mr Colin Davis, Mr Michael Fox, Mr Graham Howlett, Professor Adam McBride

Thanks to Graham Howlett for his help in checking this index.

https://doi.org/10.1017/mag.2020.40 Published online by Cambridge University Press