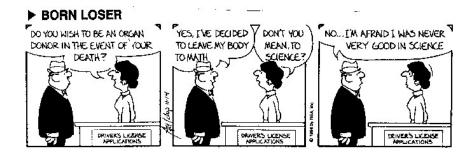


Rudi Mathematici

x^{4} -8184 x^{3} +25144736 x^{2} -34251153024x+17515362723840=0





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January

1	1	Т	(1803) Guglielmo LIBRI Carucci dalla Sommaja	USAMO 199 4
			(1878) Agner Krarup ERLANG (1894) Satyendranath BOSE	Let $k_1 < k_2 < k_3$
			(1912) Boris GNEDENKO	consecutive,
	2	F	(1822) Rudolf Julius Emmanuel CLAUSIUS	m=1;2;;m.
			(1905) Lev Genrichovich SHNIRELMAN (1938) Anatoly SAMOILENKO	integer n , the location of n
	3	\mathbf{S}	(1936) Anatoly SAMOHIMAKO (1917) Yuri Alexeievich MITROPOLSHY	least one perf
	3 4	S	(1643) Isaac NEWTON	Why Slide
2	<u>4</u> 5	M	(1945) Isaac NEW TOR (1838) Marie Ennemond Camille JORDAN	Better than
2	9	IVI	(1871) Federigo ENRIQUES	A Slide Rule o
		• •	(1871) Gino FANO (1807) Jozeph Mitza PETZVAL	it gets too hot
	6	Т	(1807) Sozeph Mitza PETZ VAE- (1841) Rudolf STURM	The Wonder
	7	W	(1871) Felix Edouard Justin Emile BOREL	1. Ten perc
	8	Т	(1907) Raymond Edward Al an Christo pher PALEY (1888) Richard COURANT	2. All polar
	0	1	(1924) Paul Moritz COHN	 An polar If your c
	•		(1942) Stephen William HAWKING	chance it
	9	F	(1864) Vladimir Adreievich STELKOV (1875) Issai SCHUR	Someone to
	10	S	(1875) Issai SCHUR (1905) Ruth MOUFANG	included in t
	11	S	(1545) Guidobaldo DEL MONTE	mended in t
			(1707) Vincenzo RICCATI (1734) Achille Pierre Dionis DU SEJOUR	Pl
3	12	M	(1906) Kurt August HIRSCH	Physics is b physicists.
-	13	T	(1864) Wilhelm Karl Werner Otto Fritz Franz WIEN	physicists.
	- 0	1	(1876) Luther Pfahler EISENHART (1876) Erhard SCHMIDT	YE
	14	W	(1876) Ernard SCHMIDL (1902) Alfred TARSKI	The proof of
	14	T	(1704) Johann CASTILLON	not mathema
	10	-	(1717) Mattew STEWART	1.1.1
	16	F	(1850) Sofia Vasilievna KOVALEVSKAJA (1801) Thomas KLAUSEN	Say what yo
	16 17	10 C C	(1801) Thomas ALAUSEN (1847) Nikolay Egorovich ZUKOWSKY	come what n
	11	S	(1858) Gabriel KOENIGS	So
	18	\mathbf{S}	(1856) Luigi BIANCHI (1880) Paul EHRENFEST	When we
4	19	Μ	(1880) Paul EHRENFEST (1813) Rudolf Friedrich Alfred CLEBSCH	looking for a
	10	AVE .	(1879) Guido FUBINI	11
	20	T	(1908) Aleksandr Gennadievich KUROS (1775) Andre` Marie AMPERE	It gives m
	40		(1895) Gabor SZEGO	someone els
	0.1	117	(1904) Renato CACCIOPPOLI (1846) Pieter Hendrik SCHOUTE	when I do it
	21	W	(1915) Yuri Vladimirovich LINNIK	-
5	22	Т	(1592) Pierre GASSENDI	I have no cer
	23	F	(1908) Lev Davidovich LANDAU (1840) Ernst ABBE	
			(1862) David HILBERT	"When I us
	24	S	(1891) Abram Samoilovitch BESICOVITCH (1914) Vladimir Petrovich POTAPOV	said, in a ra
	25	S	(1627) Robert BOYLE	just what I
	_0	~	(1736) Joseph-Louis LAGRANGE (1843) Karl Herman Amandus SCHWARTZ	more nor les
5	26	М	(1843) Karl Herman Amandus SCHWARTZ (1799) Benoit Paul Emile CLAPEYRON	"The question
0	20 27	T	(1793) Denoit 1 auf Edmie CLATE HIGH (1832) Charles Lutwidge DODGSON	you can m
	21 28	W	(1701) Charles Marie de LA CONDAMINE	different thir
	40		(1892) Carlo Emilio BONFERRONI	"The questio
	29	Т	(1817) William FERREL (1888) Sidney CHAPMAN	"which is to
	30	F	(1619) Michelangelo RICCI	
	31	S	(1715) Giovanni Francesco FAGNANO dei Toschi	
	91	5	(1841) Samuel LOYD	
			(1896) Sofia Alexandrovna JANOWSKAJA	

USAMO 1994 [1] Let $k_1 < k_2 < k_3 < ...$ be positive integers, no two consecutive, and let $s_m = k_1 + k_2 + ... + k_m$ for n=1;2;...;m. Prove that, for each positive integer n, the interval $[s_n;s_{n+1}]$ contains at least one perfect square. Why Slide Rule, Pencil and Paper are

Better than a Workstation A Slide Rule doesn't shut down abruptly when t gets too hot.

The Wonderful Word of Statistics

. Ten percent of all car thieves are lefthanded

2. All polar bears are left-handed

 If your car is stolen, there's a 10 percent chance it was nicked by a Polar bear

Someone told me that each equation I included in the book would halve its sales.

Stephen William HAWKING Physics is becoming too difficult for the physicists.

David HILBERT

The proof of the Hilbert Basis Theorem is not mathematics; it is theology.

Camille JORDAN what you know, do what you must,

come what may. Sofia Vasilievna KOVALEVSKAJA When we ask advice, we are usually looking for an accomplice.

Joseph-Louis LAGRANGE It gives me the same pleasure when someone else proves a good theorem as when I do it myself.

Lev Davidovich LANDAU

I have no certainties, at most probabilities. Renato CACCIOPPOLI

"When I use a word," Humpty Dumpty said, in a rather scornful tone, "it means just what I choose it to mean - neither more nor less."

"The question is," said Alice, "whether you can make words mean so many different things."

"The question is," said Humpty Dumpty, "which is to be master - that's all."

Charles DODGSON

February

		~	1	
5	1	S	(1900) John Charles BURKILL	USAMO 1994 [2]
6	2	Μ	(1522) Lodovico FERRARI	The sides of a 99-gon are initially coloured so
	3	Т	(1893) Gaston Maurice JULIA	that consecutive sides are red, blue, red, blue,, red, blue, yellow. We make a sequence
	4	W	(1905) Eric Cristopher ZEEMAN	of modifications in the colouring, changing the
	5	Т	(1757) Jean Marie Constant DUHAMEL	colour of one side at a time to one of the three
	6	\mathbf{F}	(1612) Antoine ARNAULD (1695) Nicolaus (II) BERNOULLI	given colours (red, blue, yellow), under the
	7	\mathbf{S}	(1895) Nicolads (II) BERNOULLI (1877) Godfried Harold HARDY	constraint that no two adjacent sides may be
	1		(1883) Eric Temple BELL	the same colour. By making a sequence of such modifications, is it possible to arrive at the
	8	S	(1700) Daniel BERNOULLI (1875) Francis Ysidro EDGEWORTH	colouring in which consecutive sides are red,
7	9	М	(1775) Farkas Wolfgang BOLYAI	blue, red, blue, red, blue,, red, yellow, blue?
•	Ű		(1907) Harod Scott MarDonald COXETER	Why Slide Rule, Pencil and Paper are
	10	Т	(1747) Aida YASUAKI	Better than a Workstation
	11	W	(1800) William Henry Fox TALBOT (1839) Josiah Willard GIBBS	One hundred people all using Slide Rules and
			(1915) Richard Wesley HAMMING	Paper Pads do not start wailing and screaming
	12	Т	(1914) Hanna CAEMMERER NEUMANN	due to a single-point failure.
	13	F	(1805) Johann Peter Gustav Lejeune DIRICHLET	If you have a cross-CAP on your sphere, And you give it a circle-shaped tear,
	14	S	(1468) Johann WERNER	Then just shake it about
			(1849) Hermann HANKEL (1896) Edward Artur MILNE	And untangle it out
	15	S	(1564) Galileo GALILEI	And a Moebius strip will appear!
		A	(1861) Alfred North WHITEHEAD (1946) Douglas HOFSTADTER	Measure what is measurable, and make
8	16	M	(1822) Francis GALTON	measurable what is not so.
0			(1853) Georgorio RICCI-CURBASTRO (1903) Beniamino SEGRE	Galileo GALILEI
	17	Т	(1903) Demamino SEGRE (1890) Sir Ronald Aymler FISHER	Whenever you can, count.
		and a	(1891) Adolf Abraham Halevi FRAENKEL	Francis GALTON
	18	W	(1404) Leon Battista ALBERTI	Mathematics is a language
	19	'T	1(1473) Nicolaus COPERNICUS	Josiah Willard GIBBS
	20	F	(1844) Ludwig BOLTZMANN	Mathematics is an interesting intellectual
	21	S	(1591) Girard DESARGUES (1915) Evgenni Michailoviteh LIFSHITZ	sport but it should not be allowed to stand
	22	S	(1913) Evgenin Michanoviten EirSHTZ (1903) Frank Plumpton RAMSEY	in the way of obtaining sensible
9	23	M	(1583) Jean-Baptiste MORIN	information about physical processes.
0		$\sim 10^{-1}$	(1951) Shigefumi MORI	Richard Wesley HAMMING
	24	Т	(1871) Felix BERNSTEIN	In most sciences one generation tears down
	25	W	(1827) Henry WATSON	what another has built, and what one has
	26	Т	(1786) Dominique Francois Jean ARAGO	established, another undoes. In
5	27	F	(1881) Luitzen Egbertus Jan BROUWER	mathematics alone each generation adds a
	28	S	(1735) Alexandre Theophile VANDERMONDE	new store to the old structure.
	29	S	(1860) Herman HOLLERITH	Hermann HANKEL
				I am interested in mathematics only as a
				creative art.
				Godfried Harold HARDY

March

		3.5		٦	
10	1	Μ	(1611) John PELL		USAMO 1994 [3]
	2	Т	(1836) Julius WEINGARTEN	_	A convex hexagon ABCDEF is inscribed in a
	3	W	(1838) George William HILL (1845) Georg CANTOR		circle such that $AB=CD=EF$ and diagonals AD , BE and CF are concurrent. Let P be the
	4	Т	(1822) Jules Antoine LISSAJUS		intersection of AD and CE. Prove that
	5	\mathbf{F}	(1512) Gerardus MERCATOR		$CP/PE=(AC/CE)^2$.
			(1759) Benjamin GOMPERTZ (1817) Angelo GENOCCHI	Ľ	Why Slide Rule, Pencil and Paper are
	6	\mathbf{S}	(1866) Ettore BORTOLOTTI		Better than a Workstation
	7	S	(1792) William HERSCHEL		A Slide Rule doesn't smoke whenever the
	-	а 	(1824) Delfino CODAZZI	-	power supply hiccups. And a Slide Rule
11	8	Μ	(1851) George CHRYSTAL		doesn't care if you smoke, or hiccup.
	9	Т	(1818) Ferdinand JOACHIMSTHAL (1900) Howard Hathaway AHKEN	1	When I set k equal to 0, I can be a mathematical hero:
	10	W	(1864) William Fogg OSGOOD		If I should decide
	11	Т	(1811) Urbain Jean Joseph LE VERRIER	-	By-k to divide,
			(1853) Salvatore PINCHERLE		Then it's clear that $1 = 0$.
	12	\mathbf{F}	(1685) George BERKELEY (1824) Gustav Robert KIRKHHOFF	1	We [he and Halmos] share a philosophy
		1.8	(1859) Ernesto CESARO		about linear algebra: we think basis-free,
	13	S	(1861) Jules Joseph DRACH		we write basis-free, but when the chips are
	14	S	(1957) Rudy D'ALEMBERT (1864) Jozef KURSCHAK	-	down we close the office door and
	14		(1879) Albert EINSTEIN	10	compute with matrices like fury.
12	15	M	(1860) Walter Frank Raphael WELDON (1868) Grace CHISOLM YOUNG		Irving KAPLANSKY
	16	T	(1750) Caroline HERSCHEL		Nature laughs at the difficulties of
			(1789) Georg Simon OHM (1846) Magnus Gosta MITTAG-LEFFLER	-	integration.
	17	W		1	Pierre-Simon de LAPLACE
		and a	(1897) Charles FOX		The mathematician's best work is art, a
	18	Т	(1640) Philippe de LA HIRE (1690) Christian GOLDBACH	X.	high perfect art, as daring as the most
		1.1	(1796) Jacob STEINER	1	secret dreams of imagination, clear and
	19	E	(1862) Adolf KNESER	1	limpid. Mathematical genius and artistic
	90	a	(1910) Jacob WOLFOWITZ (1840) Franz MERTENS		genius touch one another.
	20	\mathbf{S}	(1884) Philip FRANCK		Magnus Gosta MITTAG-LEFFLER
	9	1	(1938) Sergi Petrovich NOVIKOV		A mathematician is a person who can find
	21	S	(1768) Jean Baptiste Joseph FOURIER (1884) George David BIRKHOFF		analogies between theorems; a better
13	22	Μ	(1917) Irving KAPLANSKY		mathematician is one who can see
10	23	T	(1754) Georg Freiherr von VEGA		analogies between proofs and the best
	-0	1.2	(1882) Emmy Amalie NOETHER	1	mathematician can notice analogies
	24	W	(1897) John Lighton SYNGE (1809) Joseph LIOUVILLE	1	between theories. One can imagine that the
	24	VV	(1948) Sun-Yung (Alice) CHANG	10	ultimate mathematician is one who can see
	25	Т	(1538) Christopher CLAUSIUS		analogies between analogies.
	26	F	(1848) Konstantin ADREEV	-	Stefan BANACH
	27	S	(1913) Paul ERDOS (1857) Karl PEARSON		The essence of mathematics lies in its
	21 28	S	(1749) Pierre Simon de LAPLACE	-	freedom.
14	<u>20</u> 29	M	(1825) Francesco FAA` DI BRUNO		Georg CANTOR
1.4	40	TAT	(1873) Tullio LEVI-CIVITA		This has been done elegantly by
	90	Т	(1896) Wilhelm ACKERMAN (1892) Stefan BANACH		Minkowski; but chalk is cheaper than grey
	30 91				matter, and we will do it as it comes.
	31	W	(1596) Rene` DESCARTES		Albert EINSTEIN

April

_						
1	14	1	Т	(1640) Georg MOHR (1776) Maria Sankia OEDMAIN		USAMO 1994 [4]
				(1776) Marie-Sophie GERMAIN (1895) Alexander Craig AITKEN		Let a_1, a_2, a_3, \dots a sequence of positive real
		2	\mathbf{F}	(1934) Paul Joseph COHEN		n
		3	S	(1835) John Howard Van AMRINGE		numbers satisfying $\sum_{i=1}^{n} a_{i} \ge \sqrt{n}$ for all
		0	6	(1892) Hans RADEMACHER		$\sum_{j=1}^{n} \sigma_j = \sqrt{n}$
				(1900) Albert Edward INGHAM		
				(1909) Stanislaw Marcin ULAM (1971) Alice RIDDLE		$n \ge 1$. Prove that, for all $n \ge 1$,
		4	\mathbf{S}	(1809) Benjamin PEIRCE	- 4	$\sum_{n=1}^{n} 1(1, 1)$
		4	В	(1842) Francois Edouard Anatole LUCAS		$\sum a_i^2 > - 1+-++- $
				(1949) Shing-Tung YAU		j=1 4 (2 n)
]	15	5	M	(1588) Thomas HOBBES (1607) Honore` FABRI		Why Slide Rule, Pencil and Paper are
				(1622) Vincenzo VIVIANI	2	Better than a Workstation
				(1869) Sergi Alexeievich CHAPLYGIN	1	You can spill coffee on a Slide Rule; you can
		6	Т			even use a Slide Rule to stir coffee.
		7	W	(1768) Francais Joseph FRANCAIS		
		8	Т	(1903) Marshall Harvey STONE		The Wonderful Word of Statistics
		9	F	(1791) George PEACOCK	1	1. 39 percent of unemployed men wear
		U		(1816) Charles Eugene DELAUNAY		spectacles
			~	(1919) John Presper HECKERT	1	2. 80 percent of employed men wear
		10	S	(1857) Henry Ernest DUDENEY	-	spectacles
		11	S	(1953) Andrew John WILES	10	Work stuffs up your eyesight
1	16 1	12	M	(1794) Germinal Pierre DANDELIN (1852) Carl Louis Ferdinand Von LINDEMANN		The total number of Dirichlet's
				(1903) Jan TINBERGEN	No.	publications is not large: jewels are not
		13	Т	(1728) Paolo FRISI		weighed on a grocery scale.
			1	(1813) Duncan Farquharson GREGORY		Carl Frederich GAUSS
			117	(1879) Francesco SEVERI	1	In describing the honourable mission I
		14	W	(1629) Christiaan HUYGENS	10	charged him with, M. Pernety informed
		15	T	(1452) Leonardo da VINCI (1548) Pietro Antonio CATALDI		me that he made my name known to you.
			6.3	(1707) Leonhard EULER	1	This leads me to confess that I am not as
		-14	1	(1809) Herman Gunther GRASSMANN	X	completely unknown to you as you might
		16	F	(1682) John HADLEY (1823) Ferdinand Gotthold Max EISENSTEIN		believe, but that fearing the ridicule
		17	S	(1798) Etienne BOBILLIER		attached to a female scientist, I have
			1	(1853) Arthur Moritz SCHONFLIES		previously taken the name of M. LeBlanc
		18	S	(1907) Lars Valerian AHLFORS (1918) Hsien Chung WANG		in communicating to you those notes that,
				(1949) Charles Luois FEFFERMAN		no doubt, do not deserve the indulgence
	17	19	Μ	(1880) Evgeny Evgenievich SLUTSKY	-	with which you have responded.
		٦.		(1883) Richard VIN MISES (1901) Kiyoshi OKA	1	
				(1905) Charles EHRESMANN	1	Sophie GERMAIN
		20	Т	(1839) Francesco SIACCI		[He] gave a formal demonstration of the
		21	W	(1652) Michel ROLLE		inadequacy of formal demonstrations.
	Ī	C		(1774) Jean Baptiste BIOT	-	Anonymous, about Kurt GODEL
		99	Т	(1875) Teiji TAKAGI (1811) Otto Ludwig HESSE	-	The presentation of mathematics in
	2	22	1	(1887) Harald August BOHR		schools should be psychological and not
	2	23	F	(1858) Max Karl Ernst Ludwig PLANCK		systematic. The teacher, so to speak,
		24	\mathbf{S}	(1863) Giovanni VAILATI		should be a diplomat. He must take
		25	$\tilde{\mathbf{S}}$	(1849) Felix Christian KLEIN	_	account of the psychic processes in the
	4		2	(1900) Wolfgang PAULI		boy in order to grip his interest, and he
H	10	20	Ъ . Г	(1903) Andrei Nicolayevich KOLMOGOROV		will succeed only if he presents things in a
		26	M	(1889) Ludwig Josef Johan WITTENGSTEIN		form intuitively comprehensible. A more
		27	Т	(1755) Marc-Antoine PARSEVAL des Chenes		abstract presentation is only possible in
		28	W	(1906) Kurt GODEL		the upper classes.
	2	29	Т	(1854) Jules Henri POINCARE`		* *
		30	\mathbf{F}	(1777) Johann Carl Friedrich GAUSS		Felix KLEIN
L				(1916) Claude Elwood SHANNON		

May

18	1	\mathbf{S}	(1825) Johann Jacob BALMER		USA
	2	\mathbf{S}	(1860) D'Arcy Wentworth THOMPSON		Let
19	3	М	(1905) Kazimierz ZARANKIEWITZ (1842) Otto STOLZ		is de
10	_		(1860) Vito VOLTERRA		and, num
	4	Т	(1845) William Kingdon CLIFFORD		sequ
	5	W	(1833) Lazarus Emmanuel FUCHS (1897) Francesco Giacomo TRICOMI		term
	6	Т	(1872) Willem DE SITTER	-	obta the 1
	7	F	(1906) Andre`VEIL (1926) Alexis Claude CLAIRAUT		-
	1	Г	(1854) Giuseppe VERONESE		Why Bett
			(1881) Ebenezer CUNNINGHAM (1896) Pavel Sergieieyich ALEXANDROV		AS
	8	S	(1859) Johan Ludwig William Valdemar JENSEN	100	brie
	9	S	(1746) Gaspard MONGE	N	char
20	10	M	(1876) Gilbert Ames BLISS (1788) Augustin Jean FRESNEL		Mat
20	10	Μ	(1847) William Karl Joseph KILLING		Has The
		m	(1958) Piotr Rizierovich SILVERBRAHMS		Just
	11	T	(1918) Richard Phillips FEYNMAN (1845) Pierre Rene`Jean Baptiste Henry BROCARD		On o
	12	W	(1902) Frank YATES	100	Euc
	13	T	(1750) Lorenzo MASCHERONI		No. of Concession, Name
	14	F	(1832) Rudolf Otto Sigismund LIPSCHITZ (1863) John Charles FIELDS		Nov
	15	S	(1939) Brian HARTLEY	-	doiı
	16	S	(1718) Maria Gaetana AGNESI		seve
01	- 34	1. A.	(1821) Pafnuti Lvovi CHEBYSHEV		mat
21	17	M	(1850) Oliver HEAVISIDE	1.00	wou form
	18	T	(1892) Bertrand Arthur William RUSSELL	100.00	in t
	19	W	(1919) Georgii Dimitirievich SUVOROV		our
	20	Ţ	(1861) Henry Seely WHITE	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	form
	21	F	(1471) Albrecht DURER (1792) Gustave Gaspard de CORIOLIS	N	and
	22	S	(1865) Alfred Cardew DIXON		to u
	23	S	(1914) Lipa BERS		hav
22	24	M-			mat But
	25	Т	(1838) Karl Mikailovich PETERSON		enjo
	26	W	(1667) Abraham DE MOIVRE	1000	natt
	27	Т	(1896) Yuri Dimitrievich SOKOLOV (1862) John Edward CAMPBELL	1	diffe
	28	F	(1676) Jacopo Francesco RICCATI		such
			(1710) Johann (II) BERNOULLI		artif
	29	S	(1882) Harry BATEMAN		inte
- 2.2	30	S	(1814) Eugene Charles CATALAN	L	
23	31	Μ	(1926) John KEMENY		
			'AS NO	ſ	

USAMO 1995 [1]

		Let p be an odd prime. The sequence (a_n) , $n \ge 0$ is defined as follows: $a_0=0$, $a_1=1$,, $a_{p\cdot 2}=p-2$ and, for all $n\ge p-1$, a_n is the least positive number that does not form an arithmetic sequence of length p with any of the preceding terms. Prove that, for all n , a_n is the number obtained by writing n in base $p-1$ and reading the result in base p .	
1		Why Slide Rule, Pencil and Paper are Better than a Workstation A Slide, Rule, Pencil and Paper fit in a briefcase with space left over for lunch or a change of underwear.	
1	11	Mathematics: of sciences, queen Has more rules than I've ever seen. There are no exceptions, Just number deceptions. On calculators, I am quite keen.	
1	1 1	Euclid for children is barbarous. Oliver HEAVISIDE	
11		Now one may ask, "What is mathematics doing in a physics lecture?" We have several possible excuses: first, of course, mathematics is an important tool, but that	
X		would only excuse us for giving the formula in two minutes. On the other hand, in theoretical physics we discover that all	
	11	our laws can be written in mathematical form; and that this has a certain simplicity and beauty about it. So, ultimately, in order to understand nature it may be necessary to	b
1		have a deeper understanding of mathematical relationships. But the real reason is that the subject is	
	1	enjoyable, and although we humans cut nature up in different ways, and we have different courses in different departments,	
		such compartmentalization is really artificial, and we should take our intellectual pleasures where we find them. Richard FEYNMAN	
		Michard F E I NMAN	

June

			-	
23 1	Т	(1796) Sadi Leonard Nicolas CARNOT (1851) Edward Bailey ELLIOTT		USAMO 1995 [2]
		(1899) Edward Charles TITCHMARSH		A calculator is broken so that the only keys that
2	W	(1895) Tibor RADO`	1	still work are the <i>sin</i> ; <i>cos</i> ; <i>tan</i> ; <i>sin</i> ⁻¹ ;
- 3		(1659) David GREGORY		cos-1; and tan-1 buttons. The display initially
4		(1809) John Henry PRATT		shows $\boldsymbol{\theta}$. Given any positive rational number \boldsymbol{q} ;
5		(1806) John Henry Frank (1814) Pierre LAurent WANTZEL		show that pressing some finite sequence of buttons will yield q_i Assume that the calculator
9	0	(1819) John Couch ADAMS		does real number calculations with infinite
6	\mathbf{S}	(1436) Johann Muller REGIOMONTANUS		precision. All functions are in terms of radians.
		(1857) Aleksandr Michailovitch LYAPUNOV (1906) Max ZORN	10	Why Slide Rule, Pencil and Paper are Better
24 7	M	(1863) Edward Burr VAN VLECK	-	-than a Workstation
8	Т	(1625) Giovanni Domenico CASSINI		A properly used Slide Rule can perform pipelined
		(1858) Charlotte Angas SCOTT (1860) Alicia Boole STOTT	1	and parallel operations. (Okay, you need a guru
9	W	(1885) John Edensor LITTLEWOOD		for this.)
		(940) Mohammad ABU'L WAFA Al-Buzjani	- 1	The method of Diophantus
10) 1	(1887) Vladimir Ivanovich SMIRNOV		May cease to enchant us After a life spent trying to gear 'em
11	l F	(1937) David Bryant MUMFORD	1	To Fermat's Last theorem.
12	2 S	(1888) Zygmunt JANYSZEWSKI		In my opinion, a mathematician, in so far as
13		(1831) James Clerk MAXWELL	1	he is a mathematician, need not preoccupy
10	· 7/	(1876) William Sealey GOSSET (Student)	-	himself with philosophy an opinion,
05 14	<u>а Т</u>	(1928) John Forbes NASH (1736) Charles Augustin de COULOMB	10	moreover, which has been expressed by many
25 1 4	4 M	(1856) Andrei Andreyevich MARKOV	-	philosophers.
		(1903) Alonzo CHURCH	Sec. 1	Henri Jean LEBESGUE
15	5 T	(1640) Bernard LAMY (1894) Nikolai Gregorievich CHEBOTARYOV		A good mathematical joke is better, and better
16	W W	(1915) John Wilder TUKEY		mathematics, than a dozen mediocre papers.
17		(1898) Maurits Cornelius ESCHER		John Edensor LITTLEWOOD
18		(1858) Andrew Russell FORSYTH		
		(1884) Charles Ernest WEATHERBURN	N	My soul is an entangled knot, Upon a liquid vortex wrought
19	S	(1623) Blaise PASCAL (1902) Wallace John ECKERT	10	By Intellect in the Unseen residing,
20	S	(1873) Alfred LOEWY	3	And thine doth like a convict sit,
26 21		(1781) Simeon Denis POISSON		With marlinespike untwisting it,
20 21		(1828) Giuseppe BRUNO		Only to find its knottiness abiding;
22	2 T	(1860) Mario PIERI (1864) Hermann MINKOWSKY		Since all the tools for its untying
		(1910) Konrad ZUSE		In four-dimensional space are lying,
23	3 W	(1912) Alan Mathison TURING	-	Wherein they fancy intersperses
24		(1880) Oswald VEBLEN	1	While Klein and Clifford fill the void
25		(1908) William Van Orman QUINE	1	With one finite, unbounded homaloid,
26		(1824) William THOMPSON, Lord Kelvin		And think the Infinite is now at last destroyed.
		(1918) Yudell Leo LUKE		James Klerk MAXWELLL
27		(1806) Augustus DE MORGAN	-	
27 2 8		(1875) Henri Leon LEBESGUE		
29		(1888) Aleksandr Aleksandrovich FRIEDMANN		
30) Ŵ	(1791) Felix SAVART		
		as No		n
		S NO		

July

27	1	Т	(1643) Gottfried Wilhelm von LEIBNIZ (1788) Jean Victor PONCELET	USAMO 1995 [3]
	2	F	(1820) William John Racquorn RANKINE (1852) William BURNSIDE	Given a non-isosceles, non-right triangle ABC ; let O denote the centre of its circumscribed circle,
	3	\mathbf{S}	(1807) Ernest Jean Philippe Fauque de JONQUIERE	and let A_I ; B_I ; and C_I be the midpoints of sides
	4	\mathbf{S}	(1897) Jesse DOUGLAS (1906) Daniel Edwin RUTHERFORD	BC ; CA ; and AB ; respectively. Point A_2 is located on the ray OA _I so that triangle OAA _I is similar to
28	5	M	(1917) Michail Samuilovich LIVSIC	triangle OA_2A . Points B_2 and C_2 on rays OB_1 and
20	5 6	T	(1849) Alfred Bray KEMPE	OC_1 ; respectively, are defined similarly. Prove that lines AA_2 ; BB_2 ; and CC_2 are concurrent, i.e.
	7	W	(1816) Johann Rudolf WOLF	these three lines intersect at a point.
			(1906) William FELLER (1922) Vladimir Aleksandrovich MARCHENKO	- Why Slide Rule, Pencil and Paper are Better
	8	Т	(1760) Christian KRAMP	than a Workstation
	9	F	(1845) George Howard DARWIN	You don't get junk mail offering pricey software upgrades that fix current errors while introducing
	10	\mathbf{S}	(1862) Roger COTES (1868) Oliver Dimon KELLOGG	new ones.
	11	\mathbf{S}	(1857) Sir Joseph LARMOR	The Wonderful World of Statistics
29	12	Μ	(1890) Giacomo ALBANESE (1875) Ernest Sigismund FISCHER	1. A total of 4000 cans are opened around the
	13	Т	(1895) Richard BUCKMINSTER FULLER (1527) John DEE	world every second 2. Ten babies are conceived around the world
	13	7.4	(1741) Karl Friedrich HINDENBURG	every second
	14	W	(1865) Wilhelm WIRTINGER	Each time you open a can, you stand a 1 in
	15	T	(1906) Adolph Andrej Pavlovich YUSHKEVICH	400 chance of falling pregnant
	16	F	(1678) Jakob HERMANN (1903) Irmgard FLUGGE-LOTZ	It is rare to find learned men who are clean, do not stink and have a sense of humour.
	17	S	(1831) Victor Mayer Amedee` MANNHEIM	(Montesquieu about) Gottfried von LEIBNIZ
	18	S	(1837) Wilhelm LEXIS (1013) Hermann von REICHENAU	The imaginary number is a fine and
	-0	T	(1635) Robert HOOKE (1853) Hendrich Antoon LORENTZ	wonderful resource of the human spirit,
30	19	M	(1768) Francois Joseph SERVOIS	almost an amphibian between being and not
	20	Y		being.
	21	W	(1620) Jean PICARD (1848) Emil WEYR	Gottfried von LEIBNIZ Probability is a mathematical discipline
	3	1	(1849) Robert Simpson WOODWARD	whose aims are akin to those, for example, of
	22 23	T	(1784) Friedrich Wilhelm BESSEL (1775) Etienne Louis MALUS	geometry of analytical mechanics. In each
			(1854) Ivan SLEZYNSKY	field we must carefully distinguish three
	24	S	(1851) Friedrich Herman SCHOTTKY (1871) Paul EPSTEIN	aspects of the theory:(a) the formal logical content,
	95	C	(1923) Christine Mary HAMILL	(a) the intuitive background,
31	$\frac{25}{26}$	S M	(1808) Johann Benedict LISTING (1903) Kurt MAHLER	(c) the applications.
91	20 27	T	(1667) Johann BERNOULLI	The character, and the charm, of the whole
			(1801) George Biddel AIRY (1848) Lorand Baron von EOTVOS	structure cannot be appreciated without considering all three aspects in their proper
			(1871) Ernst Friedrich Ferdinand ZERMELO	relation.
	28 20	W T	(1954) Gerd FALTINGS	William FELLER
	29 30	ı F		
	31	S	(1704) Gabriel CRAMER	$n \sim$
			(1712) Johann Samuel KOENIG	

August

	31	1	\mathbf{S}	(1861) Ivar Otto BENDIXSON
	32	2	Μ	(1881) Otto TOEPLITZ (1856) Ferdinand RUDIO
		_		(1902) Mina Spiegel REES
		3	Т	(1914) Mark KAC
		4	W	(1805) Sir William Rowan HAMILTON (1838) John VENN
		5	Т	(1802) Niels Henrik ABEL
		6	\mathbf{F}	(1638) Nicolas MALEBRANCHE
		7	\mathbf{S}	(1741) John WILSON (1868) Ladislaus Josephowitsch BORTKIEWITZ
		8	S	(1902) Paul Adrien Maurice DIRAC
	33	9	M	(1537) Francesco BARQZZI (Franciscus Barocius)
	55	10	T	(1602) Gilles Personne de ROBERVAL
		11	W	(1730) Charles BOSSUT
				(1842) Enrico D'OVIDIO
		12	Т	(1882) Jules Antoine RICHARD (1887) Erwin Rudolf Josef Alexander SCHRODINGER
		13	F	(1625) Erasmus BARTHOLIN
				(1819) George Gabriel STOKES (1861) Cesare BURALI-FORTI
		14	S	(1530) Giovanni Battista BENEDETTI
				(1842) Jean Gaston DARBOUX (1865) Guido CASTELNUOVO
				(1866) Charles Gustave Nicolas de la VALLEE` POUSSIN
		15	S	(1863) Aleksei Nikolaevich KRYLOV (1892) Louis Pierre Victor duc de BROGLIE
		- 21		(1901) Petr Sergeevich NOVIKOV
	34	16	Μ	(12773) Louis Beniamin FRANCOEUR (1821) Arthur CAYLEY
		17	T	(1601) Pierre de FERMAT
		18	W	(1685) Brook TAYLOR
		19	T	(1646) John FLAMSTEED
		20	F	(1739) Georg Simon KLUGEL (1710) Thomas SIMPSON
		20		(1863) Corrado SEGRE
		21	S	(1882) Waclav SIERPINSKI (1789) Augustin Louis CAUCHY
		$\frac{21}{22}$	S	(1769) Augustin Louis CAUCITI (1647) Denis PAPIN
	35	23	M	(1683) Giovanni POLENI
1	00			(1829) Moritz Benedikt CANTOR
		24	Т	(1561) Bartholomeo PITISCUS (1942) Karen Keskulla UHLENBECK
(25	W	(1561) Philip van LANSBERGE
		26	Т	(1844) Thomas MUIR (1728) Johann Heinrich LAMBERT
				(1875) Giuseppe VITALI
		27	F	(1858) Giuseppe PEANO
		28	S	(1796) Irenee Jules BIENAYME`
		29	S	(1904) Leonard ROTH
	36	30	Μ	(1856) Carle David Tolme` RUNGE (1906) Olga TAUSSKY-TODD
		31	Т	(1821) Hermann Ludwig Ferdinand von HELMHOLTZ

USAMO 1995 [4] Suppose q_0, q_1, q_2, \dots is an infinite sequence of satisfying the following integers two conditions: *m-n* divides $q_m - q_n$ for $m > n \ge 0$ there is a polynomial P such that $|q_n| < P(n)$ for all n. Prove that there is a polynomial Q such that $q_n = Q(n)$ for all n. Why Slide Rule, Pencil and Paper are Better than a Workstation A Slide Rule doesn't need scheduled hardware maintenance. A Paper Pad supports text and graphics images easily, and can be easily upgraded from monochrome to colour. Q: What's an Abelian group under addition, is closed, associative, distributive, and bears a curse? A: The ring of the Nibelung Who would not rather have the fame of Archimedes than that of his conqueror Marcellus?-Sir William Rowan HAMILTON Whoever in the pursuit of science, seeks after immediate practical utility may rest assured that he seeks in vain. Hermann Ludwig Ferdinand von HELMOLTZ Steinhaus, with his predilection for metaphors, used to quote a Polish proverb, Forturny kolem sie tocza' [Luck runs incircles], to explain why π , so intimately connected with circles, keeps cropping up in probability theory and statistics, the two disciplines which deal with randomness and luck. Mark KAC It appears to me that if one wishes to make progress in mathematics, one should study the masters and not the pupils. Niels Henrich ABEL In science one tries to tell people, in such a way as to be understood by everyone, something that no one ever knew before. But in poetry, it's the exact opposite.

Paul Adrien Maurice DIRAC

Rudi Mathematici

September

36 1 W (1653) William Stankey JEVONS 2 T (1879) Mauriche Rene? FRECHET (1830) William Stankey JEVONS (1840) Alames Joseph SVLVESTER (1840) Alames Joseph SVLVESTER (1840) Alames Joseph SVLVESTER (1840) Alames Joseph SVLVESTER (1840) Alames Joseph SVLVESTER (1840) Luigi Federico MENABREA (1657) Giostani Grolamo SACCHERI 5 S (1667) Giostani Grolamo SACCHERI 7 T (1720) Jean Etienne MONTUCLA 377 6 M (1955) Enrix Jakovlerche BUKREEV (1955) Enrix Jakovlerche BUKREEV 7 T (1707) Genge Louis Leclere comto do BUPFON (1955) Enrix Jakovlerche BUKREEV (1955) Enrix MORLEY 9 T (1860) Erank MORLEY 10 F (1839) Charles Sinders PEIRCE 11 S (1633) Standord JINE 12 S (1891) Atrino Radie Law KNUD (1830) Charles Sinders PEIRCE (11830) Charles Sinders PEIRCE 14 T (1852) Multicht Johann Faueto BLASCHKE 14 T (1850) Multicht Johann Faueto BLASCHKE 15 W (1850) Adareth Brocket					
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57 0 M (1963) Dimitri Aleksandrovich GRAVE 7 T (1707) Genge Louis Leclerc contic de BUPFON (1955) Effinz ZELMANOV 8 W (1953) Gregorius SMFS VINCENT (1988) Marin MERSENNE 9 T (1860) Frank MORLEY 10 F (1839) Charles Sanders PEIRCE 11 S (1623) Stefano degli ANGEL1 (1877) sir James Hopwood JEANS 12 S (1877) sir James Hopwood JEANS 12 S (1870) Antoine Andre Louis REVNAUD (1990) Haskell Brocks CURRY 38 13 M (1973) Abo ArrayMan Muhaempad ibn Akmad AL BIRUM (1983) Harva Martvecker VINOGRADOV 15 W (973) Abo ArrayMan Muhaempad ibn Akmad AL BIRUM (1880) Harva Martvecker VINOGRADOV 15 W (973) Abo ArrayMan Muhaempad ibn Akmad AL BIRUM (1880) Harva Lecor Antoine Nicolas de Carriat de CONDORCET (1736) Johann Nicolaus TETPENS 17 F (1743) Marie Jean Antoine Nicolas de Carriat de CONDORCET (1860) Event Nelson COLE 19 S (1749) Jean Bybiste DELAMBRE 39 20 M (1842) Alexander Wilhelm von BRILL (1861) Frank Nelson COLE 21 T (1890) Goine DE WITT (1863) Haris PulsSATT (1800) Charles PulsSATT (1800) David van DANTZIG <td< th=""><th></th><th>97</th><th>C</th><th>М</th><th></th></td<>		97	C	М	
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USAMO 1995 [5]

Suppose that in a certain society, each pair of persons can be classified as either amicable or hostile. We shall say that each member of an amicable pair is a *friend* of the other, and each member of a hostile pair is a *foe* of the other. Suppose that the society has n persons and qamicable pairs, and that for every set of three persons, at least one pair is hostile. Prove that there is at least one member of the society whose foes include q fewer amicable pairs. Why Slide Rule, Pencil and Paper are Better than a Workstation Slide Rules are designed to a standardized, open architecture and are immune to viruses, worms, and other depredations from hostile adolescents with telephones. Q: What's one-sided and lives in the sea? A: Mobius Dick. From the intrinsic evidence of his creation, the Great Architect of the Universe begins to appear as a pure mathematician. James Hopwood JEANS It is clear that Economics, if it is to be a science at all, must be a mathematical science. William JEVONS If it's just turning the crank it's algebra, but if it's got an idea in it, it's topology. Solomon LEFSCHETZ How then shall mathematical concepts be judged? They shall not be judged. Mathematics is the supreme arbiter. From its decisions there is no appeal. We cannot change the rules of the game, we cannot ascertain whether the game is fair. We can only study the player at his game; not, however, with the detached attitude of a bystander, for we are watching our own minds at play. David van DANTZIG

October

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40	1	\mathbf{F}	(1671) Luigi Guido GRANDI (1898) Bela KEREKJARTO`		IMO 1961 [2]
	2	\mathbf{S}	(1825) John James WALKER	1	Let a , b , c the sides of a triangle and A its area.
	3	\mathbf{S}	(1908) Arthur ERDELYI (1944) Pierre Rene` DELIGNE		Prove that
41	4	M	(1759) Louis Francois Antoine ARBOGAST		$a^2 + b^2 + c^2 \ge 4\sqrt{3}A$
41			(1797) Jerome SAVARY		When do we have equality?
	5	Т	(1732) Nevil MASKELYNE (1781) Bernhard Placidus Johann Nepomuk BOLZANO	L.	Why Slide Rule, Pencil and Paper are Better
			(1861) Thomas Little HEATH		than a Workstation
	6	W	(1552) Matteo RICCI (1831) Julius Wilhelm Richard DEDEKIND	1	You can hold a Slide Rule at arm's length, to hit
	_		(1908) Sergei Lvovich SOBOLEV		-the obnoxious person at the next seat over.
	7	T	(1885) Niels BOHR	1	Q: What's a polar bear?
	8	F	(1908) Hans Arnold HEILTPONN		A: A rectangular bear after a coordinate
	9	S	(1581) Claude Gaspard BACHET de Meziriac (1704) Johann Andrea von SEGNER		transform.
	10		(1873) Karl SCHWARTZSCHILD		Unfortunately what is little recognized is that the most worthwhile scientific books are
10	10	S	(1861) Heinrich Friedrich Karl Ludwig BURKHARDT (1675) Samuel CLARKE		those in which the author clearly indicates
42	11	Μ	(1777) Barnabe` BRISSON	1	what he does not know; for an author most
			(1885) Alfred HAAR (1910) Cahit ARF		hurts his readers by concealing difficulties.
	12	Т	(1860) Elmer SPERRY	1	Evariste GALOIS
	13	W	(1890) Georg FEIGL	12	An expert is a man who has made all the
			(1893) Kurt Werner Friedrich REIDEMEISTER (1932) John Griggs THOMSON	-	mistakes, which can be made, in a very
	14	T	(1687) Robert SIMSON		narrow field.
			(1801) Joseph Antoine Ferdinard PLATEAU (1868) Alessandro PADOA	1	Niels BOHR
	15	F	(1608) Evangelista TORRICELLI		Newton is, of course, the greatest of all
		10	(1735) Jesse RAMSDEN (1776) Peter BARLOW		Cambridge professors, he also happens to be
	16	S	(1879) Philip Edward Bertrand JOURDAIN	Ν	the greatest disaster that ever befell not
	17	S	(1759) Jacob (II) BERNOULLI	N	merely Cambridge mathematics in particular, but British mathematical science as a whole.
43	18	Μ	(1888) Paul Isaac BERNAYS (1741) John WILSON	17	Leonard ROTH
10	19	T	(1903) Jean Frederic Auguste DELSARTE		It is true that a mathematician who is not also
		W	(1910) Subrahmanyan CHANDRASEKHAR (1632) Sir Cristopher WREN		something of a poet will never be a perfect
	20	vv	(1863) William Henry YOUNG		mathematician.
	0.1	Т	(1865) Aleksandr Petrovich KOTELNIKOV (1677) Nicolaus (I) BERNOULLI		Karl WEIERSTRASS
	_21	1	(1823) Enrico BETTI	1	
			(1855) Giovan Battista GUCCIA (1893) William LEonard FERRAR	1	
	22	F	(1587) Joachim JUNGIUS		
			(1895) Rolf Herman NEVANLINNA (1907) Saryadaman CHOWLA		
	23	S	(1865) Piers BOHL	-	
	24	S	(1804) Wilhelm Eduard WEBER		
44	25	M	(1873) Edmund Taylor WITTAKER (1811) Evariste GALOIS	-	
-1-1	25 26	Т	(1849) Ferdinand Georg FROBENIUS		
	40	T	(1857) Charles Max MASON (1911) Shiing-Shen CHERN		
	27	W	(1678) Pierre Remond de MONTMORT		
			(1856) Ernest William HOBSON		
	28	Т	(1804) Pierre Francois VERHULST	-	
	29 20	F	(1925) Klaus ROTH	-	
	30 91	S	(1906) Andrej Nikolaevich TIKHONOV	-	
	31	\mathbf{S}	(1815) Karl Theodor Wilhelm WEIERSTRASS	1	

November

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45	1	Μ	(1535) Giambattista DELLA PORTA
	2	Т	(1815) George BOOLE
	3	W	(1867) Martin Wilhelm KUTTA
	Ŭ		(1878) Arthur Byron COBLE
	4	Т	(1744) Johann (III) BERNOULLI (1865) Pierre Simon GIRARD
	F	Б	(1848) James Whitbread Lee GLAISHER
	5	\mathbf{F}	(1930) John Frank ADAMS
	6	\mathbf{S}	(1781) Giovanni Antonio Amedeo PLANA
	7	\mathbf{S}	(1660) Thomas Fantet DE LAGNY
	•		(1799) Karl Heinrich GRAFFE
10			(1898) Raphael SALEM
46	8	Μ	(1656) Edmond HALLEY (1846) Eugenio BERTENI
			(1848) Fredrich Ludwig Goldeb FREGE
			(1854) Johannes Robert RYDBERG
			(1869) Felix HAUSDORFF (1847) Carlo Alberto CASTIGLIANO
	9	Т	(1885) Theodor Franz Eduard KALUZA
			(1885) Hermann Klaus Hugo WEYL
		1.3	(1906) Jaroslav Borisovich LOPATYNSKY
	10	117	(1922) Imre LAKATOS
	10	W	(1829) Helwin Bruno CHRISTOFFEL
	11	T	(1904) John Henry Constantine WHITEHEAD
	12	F	(1825) Michail Egorovich VASHCHENKO-ZAKHARCHENKO (1842) John William STRUTT Lord RAYLEIGH
			(1842) John William STRUTT Lord RAYLEIGH (1927) Yutaka TANIYAMA
	13	S	(1876) Ernest Julius WILKZYNSKY
	10		(1878) Max Wilhelm DEHN
	14	S	(1845) Ulisse DINI
47	15	M	(1688) Louis Bertrand CASTEL
		100	(1793) Michel CHASLES (1794) Franz Adolph TAURINUS
	16	T	(1835) Eugenio BELTRAMI
		1000	(1597) Henry GELLIBRAND
	17	W	(1717) Jean Le Rond D'ALEMBERT
		15	(1790) August Ferdinand MOBIUS
	18	T	(1872) Giovanni Enrico Eugenio VACCA
	10		(1927) Jon Leslie BRITTON (1894) Heinz HOPF
	19	F	(1900) Michail Alekseevich LAVRENTEV
			(1901) Nina Karlovna BARI
	20	S	(1889) Edwin Powell HUBBLE
	014	e	(1924) Benoit MANDELBROT (1867) Dimitri SINTSOV
	21	S	
48	22	Μ	(1803) Giusto BELLAVITIS (1840) Émile Michel Hyacinte LEMOINE
	23	Т	(1616) John WALLIS
			(1820) Issac TODHUNTER
	24	W	(1549) Duncan MacLaren Young SOMERVILLE (1909) Gerhard GENTZEN
	25	Т	(1909) Gernard GENIZEN (1873) Claude Louis MATHIEU
	20	T	(1841) Fredrich Wilhelm Karl Ernst SCHRODER
	26	\mathbf{F}	(1894) Norbert WIENER
			(1946) Enrico BOMBIERI
	27	\mathbf{S}	(1867) Arthur Lee DIXON
	28	S	(1898) John WISHART
49	29	Μ	(1803) Christian Andreas DOPPLER
			(1849) Horace LAMB (1879) Nikolay Mitrofanovich KRYLOV
	30	Т	(1849) Nikolay Mitrofanovich KKYLOV (1549) Sir Henry SAVILE
	JU	1	

IMO 1961 [4]

P is inside the triangle ABC. PA intersects BC in D, PB intersects AC in E, and PC intersects AB in F. Prove that at least one of AP/PD, BP/PE, CP/PF does not exceed 2, and at least one is not less than 2.

Why Slide Rule, Pencil and Paper are Better than a Workstation

Nobody will make you feel bad by introducing a smaller, faster, cheaper slide rule next month

In modern mathematics, algebra has become so important, that numbers will soon only have symbolic meaning.

The history of astronomy is a history of receding horizons.

Edwin Powell HUBBLE

The history of mathematics, lacking the guidance of philosophy, [is] blind, while the philosophy of mathematics, turning its back on the most intriguing phenomena in the history of mathematics, is empty.

Imre LAKATOS

Being a language, mathematics may be used not only to inform but also, among other things, to seduce.

Benoit MANDELBROT

Probability is expectation founded upon partial knowledge. A perfect acquaintance with *all* the circumstances affecting the occurrence of an event would change expectation into certainty, and leave neither room nor demand for a theory of probabilities.

George BOOLE

Thus metaphysics and mathematics are, among all the sciences that belong to reason, those in which imagination has the greatest role. I beg pardon of those delicate spirits who are detractors of mathematics for saying this.... The imagination in a mathematician who creates makes no less difference than in a poet who invents.... Of all the great men of antiquity, Archimedes may be the one who most deserves to be placed beside Homer.

Jean Le Rond D'ALEMBERT

December

49	1	W	(1792) Nikolay Yvanovich LOBACHEVSKY		
45	2	T	(172) Mikolay Ivaliovich EODACHEVSKI (1831) Paul David Gustav DU BOIS-RAYMOND		IMO 1961 [6]
	4	1	(1901) George Frederick James TEMPLE		Given 3 non-coll plane p not para
	3	\mathbf{F}	(1903) Sidney GOLDSTEIN (1924) John BACKUS		B, C are all on the
	4	\mathbf{S}	(1795) Thomas CARLYLE		arbitrary points A
	5	S	(1868) Arnold Johannes Wilhelm SOMMERFELD		be the midpoints
			(1901) Werner Karl HEISENBERG		and let O be the is the locus of O a
50	6	Μ	(1682) Giulio Carlo FAGNANO dei Toschi		
	7	Т	(1647) Giovanni CEVA (1823) Leopold KRONECKER		Why Slide Rul Better than a W
	4		(1830) Antonio Luigi Gaudenzio Giuseppe CREMONA	-	Additional Paper
	8	W	(1508) Regnier GEMMA FRISIUS (1865) Jaques Salomon HADAMARD		the system seaml
			(1919) Julia Bowman ROBINSON	1	reconfigure every
	9	Т	(1883) Nikolai Nikolaievich LUZIN (1906) Grace Brewster MURRAY HOPPER	1	Law of Se
			(1917) Sergei Vasilovich FOMIN		object will fal
	10	F	(1804) Karl Gustav Jacob JACOBI		damage
	11	S	(1815) Augusta Ada KING Countess of LOVELACE (1882) Max BORN	1	The shortest pat
	12	S	(1832) Peter Ludwig Mejdell SYLOW	1	real domain pa
51	13	M	(1724) Franz Ulrich Theodosius AEPINUS	-	domain.
51			(1887) George POLYA	10	domain.
	14	T	(1546) Tycho BRAHE		Abol has 1.6
	15	W	(1802) Janos BOLYAI	No.	Abel has left
	16	Т	(1804) Wiktor Yakovievich BUNYAKOWSKY		keep them busy
	17	F	(1706) Gabrielle Emile Le Tonnelier de Breteuil du CHATELET (1835) Felice CASORATI		21 7
		A	(1842) Marius Sophus LIE		Mathematics is t
	18	S	(1900) Dame Mary Lucy CARTWRIGHT (1917) Roger LYNDON		by itself.
	10 19	S	(1917) Roger LINDON (1783) Charles Julien BRIANCHON	Ŋ	17.
	19	1	(1854) Marcel Louis BRILLOUIN	1	Priusquam auter
52	20	Μ	(1494) Oronce FINE (1648) Tommaso CEVA		finem omnis
			(1875) Francesco Paolo CANTELLI		tentanda omnia
	21	T	(1878) Jan LUKASIEVIKZ (1932) John Robert RINGROSE		11
	22	w-	(1824) Francesco BRIOSCHI		Number theories
			(1859) Otto Ludwig HOLDER (1877) Tommaso BOGGIO		having tasted th
		10	(1877) Tommaso BOGGIO (1887) Srinivasa Aiyangar RAMANUJAN	-	it up.
	23	Т	(1872) Georgii Yurii PFEIFFER	1	
	24	F	(1822) Charles HERMITE (1868) Emmanuel LASKER	1	There is no
	25	S	(1642) Isaac NEWTON		however abstrac
			(1900) Antoni ZYGMUND	-	be applied to ph
	26	S	(1780) Mary Fairfax Greig SOMERVILLE (1791) Charles BABBAGE		Nikola
53	27	Μ	(1571) Johannes KEPLER		The Analytical
	90	Т	(1654) Jacob (Jacques) BERNOULLI (1808) Athanase Louis Victoire DUPRE		patterns, just as flowers and leav
	28	T	(1882) Arthur Stanley EDDINGTON		
	90	117	(1903) John von NEUMANN (1856) Thomas Jan STIELTJES	Y	Augusta Ada K
	29 20	W T	(1856) Thomas Jan STIELTJES (1897) Stanislaw SAKS		The Council of me
	30 91	ı F	(1897) Stanisław SAKS (1872) Volodymyr LEVIYTSKY		office and then of
	31	г	(1896) Carl Ludwig SIEGEL		of this society
			(1952) Vaughan Frederick Randall JONES		wine and give ea

llinear points A, B, C and a allel to \overline{ABC} and such that A, the same side of p. Take three A', B', C' in p. Let A", B", C" s of *AA'*, *BB'*, *CC'* respectively, e centroid of *A''*, *B''*, *C''*. What as A', B', C' vary? le, Pencil and Paper are Workstation r Pads can be integrated into nlessly and without needing to ything. Gravity: An elective all so as to do the most th between two truths in the asses through the complex Jaques Salomon HADAMARD mathematicians enough to for 500 years. Charles HERMITE the science of what is clear Karl Gustav Jacob JACOBI m ad creationem, hoc est ad disputationis, veniamus: existimo. Johannes KEPLER sts are like lotus-eaters his food they can never give Leopold KRONECKER branch of mathematics, ct, which may not some day henomena of the real world. ay Yvanovich LOBACHEVSKY l Engine weaves algebraic s the Jacquard loom weaves ives. KING Countess of LOVELACE of the Royal Society is a nen who elect each other to dine together at the expense to praise each other over each other medals.

Charles BABBAGE