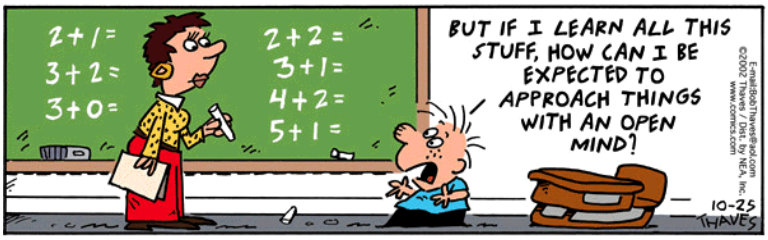
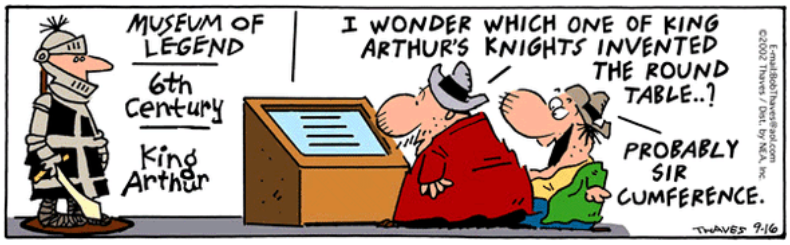
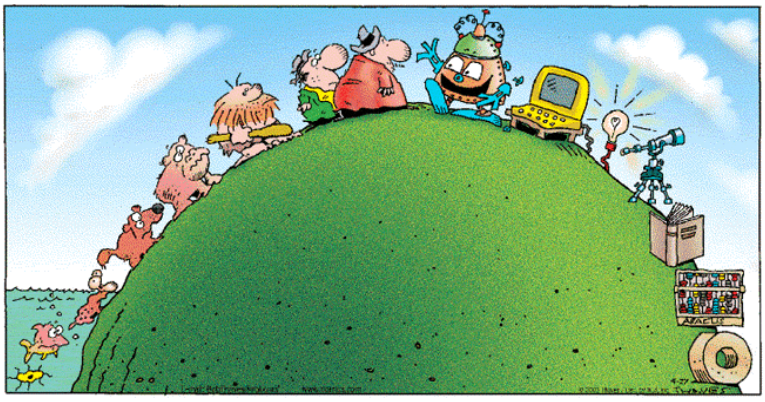
$$x^4-8216x^3+25311536x^2-34654562176x+17790983485440=0$$







	1	**S**	(1803) Guglielmo LIBRI Carucci dalla Sommaja (1878) Agner Krarup ERLANG (1894) Satyendranath BOSE (1912) Boris GNEDENKO	RM132
1	**2**	**M**	(1822) Rudolf Julius Emmanuel CLAUSIUS (1905) Lev Genrichovich SHNIRELMAN (1938) Anatoly SAMOILENKO	
	3	**T**	(1917) Yuri Alexeievich MITROPOLSKY	
	4	**W**	(1643) Isaac NEWTON	RM071
	5	**T**	(1838) Marie Ennemond Camille JORDAN (1871) Federigo ENRIQUES (1871) Gino FANO	RM084
	6	**F**	(1807) Jozeph Mitza PETZVAL (1841) Rudolf STURM	
	7	**S**	(1871) Felix Edouard Justin Emile BOREL (1907) Raymond Edward Alan Christopher PALEY	
	8	**S**	(1888) Richard COURANT (1924) Paul Moritz COHN (1942) Stephen William HAWKING	
2	**9**	**M**	(1864) Vladimir Adreievich STEKLOV	
	10	**T**	(1875) Issai SCHUR (1905) Ruth MOUFANG	
	11	**W**	(1545) Guidobaldo DEL MONTE (1707) Vincenzo RICCATI (1734) Achille Pierre Dionis DU SEJOUR	RM120
	12	**T**	(1906) Kurt August HIRSCH	
	13	**F**	(1864) Wilhelm Karl Werner Otto Fritz Franz WIEN (1876) Luther Pfahler EISENHART (1876) Erhard SCHMIDT	
	14	**S**	(1902) Alfred TARSKI	RM096
	15	**S**	(1704) Johann CASTILLON (1717) Mattew STEWART (1850) Sofia Vasilievna KOVALEVSKAJA	RM144
3	**16**	**M**	(1801) Thomas KLAUSEN	
	17	**T**	(1847) Nikolay Egorovich ZUKOWSKY (1858) Gabriel KOENIGS	
	18	**W**	(1856) Luigi BIANCHI (1880) Paul EHRENFEST	
	19	**T**	(1813) Rudolf Friedrich Alfred CLEBSCH (1879) Guido FUBINI (1908) Aleksandr Gennadievich KUROSH	
	20	**F**	(1775) André Marie AMPÈRE (1895) Gabor SZEGŐ (1904) Renato CACCIOPPOLI	RM072
	21	**S**	(1846) Pieter Hendrik SCHOUTE (1915) Yuri Vladimirovich LINNIK	
	22	**S**	(1592) Pierre GASSENDI (1908) Lev Davidovich LANDAU (1886) John William Navin SULLIVAN	RM063
4	**23**	**M**	(1840) Ernst ABBE (1862) David HILBERT	RM060
	24	**T**	(1891) Abram Samoilovitch BESICOVITCH (1914) Vladimir Petrovich POTAPOV	
	25	**W**	(1627) Robert BOYLE (1736) Joseph-Louis LAGRANGE (1843) Karl Hermann Amandus SCHWARZ	RM048
	26	**T**	(1799) Benoît Paul Émile CLAPEYRON	
	27	**F**	(1832) Charles Lutwidge DODGSON	RM108
	28	**S**	(1701) Charles Marie de LA CONDAMINE (1892) Carlo Emilio BONFERRONI	
	29	**S**	(1817) William FERREL (1888) Sidney CHAPMAN	
5	**30**	**M**	(1619) Michelangelo RICCI	
	31	**T**	(1715) Giovanni Francesco FAGNANO dei Toschi (1841) Samuel LOYD (1896) Sofia Alexandrovna JANOWSKAJA	

Rudi Mathematici

January

Putnam 1997-A1

A rectangle HOMF has sides HO=11 and OM=5. A triangle ABC has H as the intersection of the altitudes, O the centre of the circumscribed circle, M the midpoint of BC, and F the foot of the altitude from A. What is the length of BC?

Things That Math and Sex Have in Common

Explicit discussions of either topic is a *faux pas* at most cocktail parties.

Mathematic Humour

Mathematics is made of 50 percent formulas, 50 percent proofs, and 50 percent imagination.

"Can you do addition?" the White Queen asked. "What's one and one and one and one and one and one and one and one and one and one?" "I don't know," said Alice. "I lost count.".

Charles Lutwidge DODGSON

The art of doing mathematics consists in finding that special case which contains all the germs of generality.

David HILBERT

Say what you know, do what you must, come what may.

[Motto on her paper "On the Problem of the Rotation of a Solid Body about a Fixed Point."].

Sofia Vasilievna KOVALEVSKAJA

When we ask advice, we are usually looking for an accomplice.

Joseph-Louis LAGRANGE

The mathematician is entirely free, within the limits of his imagination, to construct what worlds he pleases. What he is to imagine is a matter for his own caprice; he is not thereby discovering the fundamental principles of the universe nor becoming acquainted with the ideas of God. If he can find, in experience, sets of entities which obey the same logical scheme as his mathematical entities, then he has applied his mathematics to the external world; he has created a branch of science.

John William Navin SULLIVAN

I have no certainties, at most probabilities.

Renato CACCIOPPOLI

[Poisson's] only passion has been science: he lived and is dead for it.

Guglielmo LIBRI Carucci dalla Sommaja

	1	**W**	(1900) John Charles BURKILL	
	2	**T**	(1522) Lodovico FERRARI	
	3	**F**	(1893) Gaston Maurice JULIA	RM073
	4	**S**	(1905) Eric Cristopher ZEEMAN	
	5	**S**	(1757) Jean Marie Constant DUHAMEL	
6	**6**	**M**	(1465) Scipione DEL FERRO	RM064
			(1612) Antoine ARNAULD	
			(1695) Nicolaus (II) BERNOULLI	RM093
	7	**T**	(1877) Godfried Harold HARDY	RM049
			(1883) Eric Temple BELL	
	8	**W**	(1700) Daniel BERNOULLI	RM093
			(1875) Francis Ysidro EDGEWORTH	
			(1928) Ennio DE GIORGI	RM133
	9	**T**	(1775) Farkas Wolfgang BOLYAI	
			(1907) Harold Scott MacDonald COXETER	RM097
	10	**F**	(1747) AIDA Yasuaki	RM121
	11	**S**	(1800) William Henry Fox TALBOT	
			(1839) Josiah Willard GIBBS	
			(1915) Richard Wesley HAMMING	
	12	**S**	(1914) Hanna CAEMMERER NEUMANN	
7	**13**	**M**	(1805) Johann Peter Gustav LEJEUNE DIRICHLET	RM145
	14	**T**	(1468) Johann WERNER	
			(1849) Hermann HANKEL	
			(1896) Edward Artur MILNE	
	15	**W**	(1564) Galileo GALILEI	RM085
			(1861) Alfred North WHITEHEAD	
			(1946) Douglas HOFSTADTER	
	16	**T**	(1822) Francis GALTON	
			(1853) Gregorio RICCI-CURBASTRO	
			(1903) Beniamino SEGRE	
	17	**F**	(1890) Sir Ronald Aylmer FISHER	
			(1891) Adolf Abraham Halevi FRAENKEL	
	18	**S**	(1404) Leon Battista ALBERTI	
			(1919) Clifford TRUESDELL	
	19	**S**	(1473) Nicolaus COPERNICUS	
8	**20**	**M**	(1844) Ludwig BOLTZMANN	RM061
	21	**T**	(1591) Girard DESARGUES	
			(1915) Evgeny Michailovich LIFSHITZ	
	22	**W**	(1903) Frank Plumpton RAMSEY	
	23	**T**	(1583) Jean-Baptiste MORIN	
			(1951) Shigefumi MORI	
	24	**F**	(1871) Felix BERNSTEIN	
	25	**S**	(1827) Henry WATSON	
	26	**S**	(1786) Dominique Francois Jean ARAGO	
9	**27**	**M**	(1881) Luitzen Egbertus Jan BROUWER	
	28	**T**	(1735) Alexandre Theophile VANDERMONDE	
	29	**W**	(1860) Herman HOLLERITH	RM109

Rudi Mathematici

February

Putnam 1997-A2

Players 1, 2, 3, …, n are seated around a table, and each has a single penny. Player 1 passes a penny to player 2, who then passes two pennies to player 3. Player 3 then passes one penny to Player 4, who passes two pennies to Player 5, and so on, players alternately passing one penny or two to the next player who still has some pennies. A player who runs out of pennies drops out of the game and leaves the table. Find an infinite set of numbers n for which some player ends up with all n pennies.

Things That Math and Sex Have in Common

Historically, men have been in control, but there are now efforts to get women more involved.

Mathematic Humour

"A mathematician is a device for turning coffee into theorems" (P. Erdős)
Addendum: American coffee is good for lemmas.

Euclid taught me that without assumptions there is no proof. Therefore, in any argument, examine the assumptions.

Eric Temple BELL

Mathemata mathematicis scribuntur.

(Mathematics is written for mathematicians).

Nicolaus COPERNICUS

A beautiful problem, even if you don't solve it, keeps you company when you think of it from time to time.

Ennio DE GIORGI

Natural selection is a mechanism for generating an exceedingly high degree of improbability.

Sir Ronald Aylmer FISHER

Measure what is measurable, and make measurable what is not so.

Galileo GALILEI

Mathematics is an interesting intellectual sport but it should not be allowed to stand in the way of obtaining sensible information about physical processes.

Richard Wesley HAMMING

Even mathematics is a science done by humans, and so each time, as each nation has its own spirit.

Hermann HANKEL

I am interested in mathematics only as a creative art.

Godfried Harold HARDY

	1	**T**	(1611) John PELL
	2	**F**	(1836) Julius WEINGARTEN
	3	**S**	(1838) George William HILL (1845) Georg CANTOR RM062 (1916) Paul Richard HALMOS
	4	**S**	(1822) Jules Antoine LISSAJOUS
10	**5**	**M**	(1512) Gerardus MERCATOR (1759) Benjamin GOMPERTZ (1817) Angelo GENOCCHI (1915) Laurent SCHWARTZ
	6	**T**	(1866) Ettore BORTOLOTTI
	7	**W**	(1792) William HERSCHEL RM146 (1824) Delfino CODAZZI
	8	**T**	(1851) George CHRYSTAL
	9	**F**	(1818) Ferdinand JOACHIMSTHAL (1900) Howard Hathaway AIKEN
	10	**S**	(1864) William Fogg OSGOOD
	11	**S**	(1811) Urbain Jean Joseph LE VERRIER (1853) Salvatore PINCHERLE
11	**12**	**M**	(1685) George BERKELEY (1824) Gustav Robert KIRCHHOFF (1859) Ernesto CESARO
	13	**T**	(1861) Jules Joseph DRACH (1957) Rudy D'ALEMBERT
	14	**W**	(1864) Jozef KURSCHAK (1879) Albert EINSTEIN RM074
	15	**T**	(1860) Walter Frank Raphael WELDON (1868) Grace CHISOLM YOUNG
	16	**F**	(1750) Caroline HERSCHEL RM146 (1789) Georg Simon OHM (1846) Magnus Gosta MITTAG-LEFFLER
	17	**S**	(1876) Ernest Benjamin ESCLANGON (1897) Charles FOX
	18	**S**	(1640) Philippe de LA HIRE (1690) Christian GOLDBACH RM122 (1796) Jacob STEINER
12	**19**	**M**	(1862) Adolf KNESER (1910) Jacob WOLFOWITZ
	20	**T**	(1840) Franz MERTENS (1884) Philip FRANCK (1938) Sergi Petrovich NOVIKOV
	21	**W**	(1768) Jean Baptiste Joseph FOURIER (1884) George David BIRKHOFF
	22	**T**	(1917) Irving KAPLANSKY
	23	**F**	(1754) Georg Freiherr von VEGA (1882) Emmy Amalie NOETHER RM050 (1897) John Lighton SYNGE
	24	**S**	(1809) Joseph LIOUVILLE (1948) Sun-Yung (Alice) CHANG (1966) Gigliola STAFFILANI RM142
	25	**S**	(1538) Christopher CLAUSIUS
13	**26**	**M**	(1848) Konstantin ANDREEV (1913) Paul ERDŐS RM110
	27	**T**	(1857) Karl PEARSON
	28	**W**	(1749) Pierre-Simon de LAPLACE (1928) Alexander GROTHENDIECK RM086
	29	**T**	(1825) Francesco FAA' DI BRUNO (1873) Tullio LEVI-CIVITA RM098 (1896) Wilhelm ACKERMAN
	30	**F**	(1892) Stefan BANACH RM134
	31	**S**	(1596) René DESCARTES

Rudi Mathematici

March

Putnam 1997-A3

Evaluate

$$\int_0^{\infty}\left(x-\frac{x^3}{2}+\frac{x^5}{2\cdot 4}-\frac{x^7}{2\cdot 4\cdot 6}+\ldots\right)\cdot\left(1+\frac{x^2}{2^2}+\frac{x^4}{2^2\cdot 4^2}+\frac{x^6}{2^2\cdot 4^2\cdot 6^2}+\ldots\right)dx$$

Things That Math and Sex Have in Common

There are many joint results.

Mathematic Humour

Mathematicians are like Frenchmen: whatever you say to them, they translate it into their own language, and forthwith it means something entirely different. (Goethe)

The essence of mathematics lies in its freedom.

Georg CANTOR

When writing about transcendental issues, be transcendentally clear.

René DESCARTES

I don't believe in mathematics.

Albert EINSTEIN

Mathematics is not yet ready for such problems. [Attributed by Paul Halmos]

Paul ERDŐS

... the student skit at Christmas contained a plaintive line: "Give us Master's exams that our faculty can pass, or give us a faculty that can pass our Master's exams.".

Paul Richard HALMOS

Nature laughs at the difficulties of integration.

Pierre-Simon de LAPLACE

The calculus is the greatest aid we have to the application of physical truth in the broadest sense of the word.

William Fogg OSGOOD

"The northern ocean is beautiful", said the Orc, "and beautiful the delicate intricacy of the snowflake before it melts and perishes, but such beauties are as nothing to him who delights in numbers, spurning alike the wild irrationality of life and the baffling complexities of nature's laws."

John Lighton SYNGE

	1	**S**	(1640) Georg MOHR (1776) Marie-Sophie GERMAIN (1895) Alexander Craig AITKEN	
14	**2**	**M**	(1934) Paul Joseph COHEN	
	3	**T**	(1835) John Howard Van AMRINGE (1900) Albert Edward INGHAM (1909) Stanislaw Marcin ULAM (1971) Alice RIDDLE	
	4	**W**	(1809) Benjamin PEIRCE (1842) Francois Edouard Anatole LUCAS (1949) Shing-Tung YAU	RM123
	5	**T**	(1588) Thomas HOBBES (1607) Honoré FABRI (1622) Vincenzo VIVIANI (1869) Sergi Alexeievich CHAPLYGIN	
	6	**F**	(1801) William Hallowes MILLER	
	7	**S**	(1768) François-Joseph FRANÇAIS	
	8	**S**	(1903) Marshall Harvey STONE	
15	**9**	**M**	(1791) George PEACOCK (1816) Charles Eugene DELAUNAY (1919) John Presper HECKERT	
	10	**T**	(1857) Henry Ernest DUDENEY	
	11	**W**	(1953) Andrew John WILES	
	12	**T**	(1794) Germinal Pierre DANDELIN (1852) Carl Louis Ferdinand Von LINDEMANN (1903) Jan TINBERGEN	
	13	**F**	(1728) Paolo FRISI (1813) Duncan Farquharson GREGORY (1879) Francesco SEVERI	
	14	**S**	(1629) Christiaan HUYGENS	RM135
	15	**S**	(1452) Leonardo da VINCI (1548) Pietro Antonio CATALDI (1707) Leonhard EULER (1809) Herman Gunther GRASSMANN	RM051
16	**16**	**M**	(1682) John HADLEY (1823) Ferdinand Gotthold Max EISENSTEIN	
	17	**T**	(1798) Etienne BOBILLIER (1853) Arthur Moritz SCHONFLIES (1863) Augustus Edward Hough LOVE	
	18	**W**	(1791) Ottaviano Fabrizio MOSSOTTI (1907) Lars Valerian AHLFORS (1918) Hsien Chung WANG (1949) Charles Louis FEFFERMAN	RM150
	19	**T**	(1880) Evgeny Evgenievich SLUTSKY (1883) Richard VON MISES (1901) Kiyoshi OKA (1905) Charles EHRESMANN	
	20	**F**	(1839) Francesco SIACCI	
	21	**S**	(1652) Michel ROLLE (1774) Jean Baptiste BIOT (1875) Teiji TAKAGI	
	22	**S**	(1811) Otto Ludwig HESSE (1887) Harald August BOHR	RM063
17	**23**	**M**	(1858) Max Karl Ernst Ludwig PLANCK	
	24	**T**	(1863) Giovanni VAILATI (1899) Oscar ZARISKI	RM099
	25	**W**	(1849) Felix Christian KLEIN (1900) Wolfgang PAULI (1903) Andrei Nicolayevich KOLMOGOROV	
	26	**T**	(1889) Ludwig Josef Johan WITTGENSTEIN	
	27	**F**	(1755) Marc-Antoine PARSEVAL des Chenes (1932) Gian-Carlo ROTA	
	28	**S**	(1906) Kurt GODEL	RM087
	29	**S**	(1854) Jules Henri POINCARÈ	RM075
18	**30**	**M**	(1777) Johann Carl Friedrich GAUSS (1916) Claude Elwood SHANNON	RM147 RM111

April

Putnam 1997-A4

Let G be a group with identity e and $\phi: G \to G$ a function such that:

$$\phi(g_1)\phi(g_2)\phi(g_3) = \phi(h_1)\phi(h_2)\phi(h_3)$$

whenever $g_1 g_2 g_3 = e = h_1 h_2 h_3$. Prove that there exists an element $a \in G$ such that $\psi(x) = a\phi(x)$ is an homomorphism (i.e. $\psi(xy) = \psi(x)\psi(y)\ \forall x, y \in G$).

Things That Math and Sex Have in Common

Both are prominent on college campuses, and are usually practiced indoors.

Mathematic Humour

A statistician is someone who is good with numbers but lacks the personality to be an accountant.

The notion of a set is too vague for the continuum hypothesis to have a positive or negative answer.

Paul Joseph COHEN

You know that I write slowly. This is chiefly because I am never satisfied until I have said as much as possible in a few words, and writing briefly takes far more time than writing at length.

Johann Carl Friedrich GAUSS

I don't believe in natural science. [Said to physicist John Bahcall].

Kurt GODEL

To understand this for sense it is not required that a man should be a geometrician or a logician, but that he should be mad. ["This" is that the volume generated by revolving the region under 1/x from 1 to infinity has finite volume].

Thomas HOBBES

The fact that the author thinks slowly is not serious, but the fact that he publishes faster than he thinks is inexcusable.

Wolfgang PAULI

If anybody says he can think about quantum problems without getting giddy, that only shows he has not understood the first thing about them.

Max Karl Ernst Ludwig PLANCK

The fact that in mathematics you take everything literally makes this discipline so far away from the needs of physicists as the story of the Wizard of Oz could be.

Gian-Carlo ROTA

	1	**T**	(1825) Johann Jacob BALMER	RM122
	2	**W**	(1860) D'Arcy Wentworth THOMPSON	RM138
			(1905) Kazimierz ZARANKIEWITZ	
	3	**T**	(1842) Otto STOLZ	
			(1860) Vito VOLTERRA	RM136
	4	**F**	(1845) William Kingdon CLIFFORD	
	5	**S**	(1833) Lazarus Emmanuel FUCHS	
			(1897) Francesco Giacomo TRICOMI	
	6	**S**	(1872) Willem DE SITTER	
			(1906) André WEIL	RM088
19	**7**	**M**	(1854) Giuseppe VERONESE	
			(1881) Ebenezer CUNNINGHAM	
			(1896) Pavel Sergieievich ALEXANDROV	
			(1926) Alexis Claude CLAIRAUT	
	8	**T**	(1859) Johan Ludwig William Valdemar JENSEN	
	9	**W**	(1746) Gaspard MONGE	
			(1876) Gilbert Ames BLISS	
	10	**T**	(1788) Augustin Jean FRESNEL	
			(1847) William Karl Joseph KILLING	
			(1958) Piotr Rezierovich SILVERBRAHMS	
	11	**F**	(1918) Richard Phillips FEYNMAN	RM076
	12	**S**	(1820) Florence NIGHTINGALE	RM104
			(1845) Pierre René Jean Baptiste Henry BROCARD	
			(1902) Frank YATES	
	13	**S**	(1750) Lorenzo MASCHERONI	
20	**14**	**M**	(1832) Rudolf Otto Sigismund LIPSCHITZ	
			(1863) John Charles FIELDS	RM100
	15	**T**	(1939) Brian HARTLEY	
	16	**W**	(1718) Maria Gaetana AGNESI	RM112
			(1821) Pafnuti Lvovi CHEBYSHEV	
			(1911) John (Jack) TODD	RM139
	17	**T**	(1940) Alan KAY	
	18	**F**	(1850) Oliver HEAVISIDE	
			(1892) Bertrand Arthur William RUSSELL	RM052
	19	**S**	(1919) Georgii Dimitirievich SUVOROV	
	20	**S**	(1861) Henry Seely WHITE	
21	**21**	**M**	(1471) Albrecht DÜRER	RM124
			(1792) Gustave Gaspard de CORIOLIS	
	22	**T**	(1865) Alfred Cardew DIXON	
	23	**W**	(1914) Lipa BERS	RM148
	24	**T**	(1544) William GILBERT	
	25	**F**	(1838) Karl Mikailovich PETERSON	
	26	**S**	(1667) Abraham DE MOIVRE	
			(1896) Yuri Dimitrievich SOKOLOV	
	27	**S**	(1862) John Edward CAMPBELL	
22	**28**	**M**	(1676) Jacopo Francesco RICCATI	
			(1710) Johann (II) BERNOULLI	RM093
	29	**T**	(1882) Harry BATEMAN	
	30	**W**	(1814) Eugene Charles CATALAN	
	31	**T**	(1926) John KEMENY	

May

Putnam 1997-A5

Let N_n the number of ordered n-tuples of positive integers $(a_1, a_2, \ldots, a_n)$ such that $(1/a_1 + 1/a_2 + \ldots + 1/a_n) = 1$. Determine whether N_{10} is even or odd.

Things That Math and Sex Have in Common

Most people wish they knew more about both subjects.

Mathematic Humour

Classification of mathematical problems as linear and nonlinear is like classification of the Universe as bananas and non-bananas.

We have a habit in writing articles published in scientific journals to make the work as finished as possible, to cover up all the tracks, to not worry about the blind alleys or describe how you had the wrong idea first, and so on. So there isn't any place to publish, in a dignified manner, what you actually did in order to get to do the work.

Richard Phillips FEYNMAN

For those who want some proof that physicists are human, the proof is in the idiocy of all the different units which they use for measuring energy.

Richard Phillips FEYNMAN

Why should I refuse a good dinner simply because I don't understand the digestive processes involved. [reply when criticised for his daring use of operators before they could be justified formally]

Oliver HEAVISIDE

[Upon hearing via Littlewood an exposition on the theory of relativity:] To think I have spent my life on absolute muck.

Bertrand Arthur William RUSSELL

If mathematics makes people talk of more than mathematics, then it works well.

Piotr Rezierovich SILVERBRAHMS

Mathematics is the highest and most precise expression of the truth.

Giuseppe VERONESE

God exists since mathematics is consistent, and the Devil exists since we cannot prove it.

André WEIL

	1	**F**	(1796) Sadi Leonard Nicolas CARNOT (1851) Edward Bailey ELLIOTT (1899) Edward Charles TITCHMARSH	
	2	**S**	(1895) Tibor RADÓ	
	3	**S**	(1659) David GREGORY	
22	**4**	**M**	(1809) John Henry PRATT	
	5	**T**	(1814) Pierre Laurent WANTZEL (1819) John Couch ADAMS	RM065
	6	**W**	(1436) Johann Muller REGIOMONTANUS (1857) Aleksandr Michailovitch LYAPUNOV (1906) Max ZORN	RM077
	7	**T**	(1863) Edward Burr VAN VLECK	
	8	**F**	(1625) Giovanni Domenico CASSINI (1858) Charlotte Angas SCOTT (1860) Alicia Boole STOTT	
	9	**S**	(1885) John Edensor LITTLEWOOD	RM049
	10	**S**	(940) Mohammad ABU'L WAFA Al-Buzjani (1887) Vladimir Ivanovich SMIRNOV	RM101
23	**11**	**M**	(1937) David Bryant MUMFORD	
	12	**T**	(1888) Zygmunt JANYSZEWSKI	
	13	**W**	(1831) James Clerk MAXWELL (1876) William Sealey GOSSET (Student) (1928) John Forbes NASH	RM113 RM149
	14	**T**	(1736) Charles Augustin de COULOMB (1856) Andrei Andreyevich MARKOV (1903) Alonzo CHURCH	 RM125
	15	**F**	(1640) Bernard LAMY (1894) Nikolai Gregorievich CHEBOTARYOV	
	16	**S**	(1915) John Wilder TUKEY	
	17	**S**	(1898) Maurits Cornelius ESCHER	RM097
24	**18**	**M**	(1858) Andrew Russell FORSYTH (1884) Charles Ernest WEATHERBURN (1913) Paul TEICHMUELLER	 RM148
	19	**T**	(1623) Blaise PASCAL (1902) Wallace John ECKERT	RM053
	20	**W**	(1873) Alfred LOEWY	
	21	**T**	(1781) Simeon Denis POISSON (1828) Giuseppe BRUNO	
	22	**F**	(1822) Mario PIERI (1864) Hermann MINKOWSKY (1910) Konrad ZUSE	
	23	**S**	(1912) Alan Mathison TURING	RM089
	24	**S**	(1880) Oswald VEBLEN	
25	**25**	**M**	(1908) William Van Orman QUINE	
	26	**T**	(1823) William THOMSON, Lord Kelvin (1918) Yudell Leo LUKE	
	27	**W**	(1806) Augustus DE MORGAN	
	28	**T**	(1875) Henri Leon LEBESGUE	
	29	**F**	(1888) Aleksandr Aleksandrovich FRIEDMANN	RM101
	30	**S**	(1791) Felix SAVART	

June

Putnam 1997-A6

For a positive integer n and any real number c, define x_k recursively by $x_0=0$, $x_1=1$, and for $k \geq 0$,

$$x_{k+2} = \frac{cx_{k+1} - (n-k)x_k}{k+1}.$$

Fix n and then take c to be the largest value for which $x_{n+1}=0$. Find x_k in terms of n and k, $1 \leq k \leq n$.

Things That Math and Sex Have in Common

Both can produce interesting topology and geometry.

Mathematic Humour

The difference between an introvert and extrovert mathematicians is: An introvert mathematician looks at his shoes while talking to you. An extrovert mathematician looks at your shoes.

It is easier to square the circle than to get round a mathematician.

Augustus DE MORGAN

Mathematics is the only good metaphysics.

William THOMSON, Lord Kelvin

A good mathematical joke is better, and better mathematics, than a dozen mediocre papers.

John Edensor LITTLEWOOD

It is possible for a mathematician to be "too strong" for a given occasion. he forces through, where another might be driven to a different, and possible more fruitful, approach. (So a rock climber might force a dreadful crack, instead of finding a subtle and delicate route).

John Edensor LITTLEWOOD

... that, in a few years, all great physical constants will have been approximately estimated, and that the only occupation which will be left to men of science will be to carry these measurements to another place of decimals. [Maxwell strongly disagreed with these views and was attacking them].

James Clerk MAXWELL

I think women are biologically better suited to mathematics. The study and application of mathematics does not require any physical strength. A man and a woman can not compete on the tennis court but may do so on a study of numbers, where the only force necessary is mental.

John Forbes NASH

	1	**S**	(1643) Gottfried Wilhelm von LEIBNIZ RM054 (1788) Jean Victor PONCELET
26	**2**	**M**	(1820) William John Racquorn RANKINE (1852) William BURNSIDE
	3	**T**	(1807) Ernest Jean Philippe Fauque de JONQUIERE (1897) Jesse DOUGLAS
	4	**W**	(1906) Daniel Edwin RUTHERFORD (1917) Michail Samoilovich LIVSIC
	5	**T**	(1936) James MIRRLEES
	6	**F**	(1849) Alfred Bray KEMPE
	7	**S**	(1816) Johann Rudolf WOLF (1906) William FELLER (1922) Vladimir Aleksandrovich MARCHENKO
	8	**S**	(1760) Christian KRAMP (1904) Henri Paul CARTAN RM126
27	**9**	**M**	(1845) George Howard DARWIN RM138
	10	**T**	(1862) Roger COTES (1868) Oliver Dimon KELLOGG
	11	**W**	(1857) Sir Joseph LARMOR (1888) Jacob David TAMARKIN RM101 (1890) Giacomo ALBANESE
	12	**T**	(1875) Ernest Sigismund FISCHER (1895) Richard BUCKMINSTER FULLER RM066 (1935) Nicolas BOURBAKI RM126
	13	**F**	(1527) John DEE (1741) Karl Friedrich HINDENBURG
	14	**S**	(1671) Jacques D'ALLONVILLE (1793) George GREEN RM078
	15	**S**	(1865) Wilhelm WIRTINGER (1906) Adolph Andrej Pavlovich YUSHKEVICH
28	**16**	**M**	(1678) Jakob HERMANN (1903) Irmgard FLUGGE-LOTZ
	17	**T**	(1831) Victor Mayer Amedeè MANNHEIM (1837) Wilhelm LEXIS
	18	**W**	(1013) Hermann von REICHENAU (1635) Robert HOOKE RM114 (1853) Hendrik Antoon LORENTZ
	19	**T**	(1768) Francois Joseph SERVOIS
	20	**F**	(1876) Otto BLUMENTHAL (1947) Gerd BINNIG
	21	**S**	(1620) Jean PICARD (1848) Emil WEYR (1849) Robert Simpson WOODWARD
	22	**S**	(1784) Friedrich Wilhelm BESSEL
29	**23**	**M**	(1775) Etienne Louis MALUS (1854) Ivan SLEZYNSKY
	24	**T**	(1851) Friedrich Herman SCHOTTKY (1871) Paul EPSTEIN (1923) Christine Mary HAMILL
	25	**W**	(1808) Johann Benedict LISTING
	26	**T**	(1903) Kurt MAHLER
	27	**F**	(1667) Johann BERNOULLI RM093 (1801) George Biddel AIRY (1848) Lorand Baron von EÖTVÖS (1871) Ernst Friedrich Ferdinand ZERMELO RM090
	28	**S**	(1954) Gerd FALTINGS
	29	**S**	(1898) Isidor Isaac RABI
30	**30**	**M**	(1889) Vladimir Kosma ZWORKYN
	31	**T**	(1704) Gabriel CRAMER (1712) Johann Samuel KOENIG (1926) Hilary PUTNAM

July

Putnam 1997-B1

Let $\{x\}$ denote the distance between the real number x and the nearest integer. For each positive integer n, evaluate:

$$F_n = \sum_{m=1}^{6n-1} \min\left(\left\{\frac{m}{6n}\right\}, \left\{\frac{m}{3n}\right\}\right).$$

Things That Math and Sex Have in Common

Both merit undivided attention, but mathematicians are prone to think about one while doing the other.

Mathematic Humour

Philosophy is a game with objectives and no rules. Mathematics is a game with rules and no objectives.

Everyone is free to think whatever he wants on the nature of mathematical entities, or on the truth of the theorems he uses, under the condition that its reasoning can be written in common language [Zermelo-Fraenkel set theory].

Nicolas BOURBAKI

A marvellous neutrality have these things mathematically, and also a strange participation between things supernaturally, immortally, intellectually, simple and indivisible, and things naturally, mortally, sensible, compounded and divisible.

John DEE

[about him, attributed variously to Charles Louis de Secondat Montesquieu and to the Duchess of Orléans:] It is rare to find learned men who are clean, do not stink and have a sense of humour.

Gottfried Wilhelm von LEIBNIZ

Musica est exercitium arithmeticae occultum nescientis se numerare animi (The pleasure we obtain from music comes from counting, but counting unconsciously. Music is nothing but unconscious arithmetic).

Gottfried Wilhelm von LEIBNIZ

Religion is the mathematics of the poor in spirit.

Piergiorgio ODIFREDDI

[The mathematician], asserts only that certain things are possible and others impossible - in a strongly and strictly mathematical sense of "possible" and "impossible"..

Hilary PUTNAM

	1	**W**	(1861) Ivar Otto BENDIXSON (1881) Otto TOEPLITZ	
	2	**T**	(1856) Ferdinand RUDIO (1902) Mina Spiegel REES	
	3	**F**	(1914) Mark KAC	RM115
	4	**S**	(1805) Sir William Rowan HAMILTON (1838) John VENN	RM079
	5	**S**	(1802) Niels Henrik ABEL (1941) Alexander Keewatin DEWDNEY	RM055
31	**6**	**M**	(1638) Nicolas MALEBRANCHE (1741) John WILSON	
	7	**T**	(1868) Ladislaus Josephowitsch BORTKIEWITZ	
	8	**W**	(1902) Paul Adrien Maurice DIRAC (1931) Sir Roger PENROSE	RM103
	9	**T**	(1537) Francesco BAROZZI (Franciscus Barocius)	
	10	**F**	(1602) Gilles Personne de ROBERVAL	
	11	**S**	(1730) Charles BOSSUT (1842) Enrico D'OVIDIO	
	12	**S**	(1882) Jules Antoine RICHARD (1887) Erwin Rudolf Josef Alexander SCHRÖDINGER	RM103
32	**13**	**M**	(1625) Erasmus BARTHOLIN (1819) George Gabriel STOKES (1861) Cesare BURALI-FORTI	
	14	**T**	(1530) Giovanni Battista BENEDETTI (1842) Jean Gaston DARBOUX (1865) Guido CASTELNUOVO (1866) Charles Gustave Nicolas de la VALLÉE-POUSSIN	
	15	**W**	(1863) Aleksei Nikolaevich KRYLOV (1892) Louis Pierre Victor duc de BROGLIE (1901) Piotr Sergeevich NOVIKOV	
	16	**T**	(1773) Louis-Benjamin FRANCOEUR (1821) Arthur CAYLEY	
	17	**F**	(1601) Pierre de FERMAT	RM091
	18	**S**	(1685) Brook TAYLOR	
	19	**S**	(1646) John FLAMSTEED (1739) Georg Simon KLUGEL	
33	**20**	**M**	(1710) Thomas SIMPSON (1863) Corrado SEGRE (1882) Wacław SIERPIŃSKI	
	21	**T**	(1789) Augustin Louis CAUCHY	RM127
	22	**W**	(1647) Denis PAPIN	
	23	**T**	(1683) Giovanni POLENI (1829) Moritz Benedikt CANTOR (1842) Osborne REYNOLDS	
	24	**F**	(1561) Bartholomeo PITISCUS (1942) Karen Keskulla UHLENBECK	
	25	**S**	(1561) Philip van LANSBERGE (1844) Thomas MUIR	
	26	**S**	(1728) Johann Heinrich LAMBERT (1875) Giuseppe VITALI (1965) Marcus Peter Francis du SAUTOY	
34	**27**	**M**	(1858) Giuseppe PEANO	RM067
	28	**T**	(1796) Irénée Jules BIENAYMÉ	
	29	**W**	(1904) Leonard ROTH	
	30	**T**	(1856) Carle David Tolmé RUNGE (1906) Olga TAUSSKY-TODD	RM139
	31	**F**	(1821) Hermann Ludwig Ferdinand von HELMHOLTZ	

August

Putnam 1997-B2

Let f be a twice-differentiable real-valued function satisfying:

$$f(x)+f''(x)=-xg(x)f'(x),$$

where $g(x)\geq 0 \quad \forall x \in R$. Prove that $|f(x)|$ is bounded.

Things That Math and Sex Have in Common

Saint Augustine was hostile to both, and Alan Turing took an unusual approach to both.

Mathematic Humour

What is a *rigorous* definition of rigor?

Divergent series are the invention of the devil.
Niels Henrik ABEL

Men pass away, but their deeds abide. [His last words (?)]
Augustin Louis CAUCHY

Projective geometry is all geometry.
Arthur CAYLEY

The main activity of mathematical research is to hunt for new theorems.
Alexander Keewatin DEWDNEY

If you ever need to exaggerate a statement, you could always say: "Public spending is growing faster than the Ackermann function".
Alexander Keewatin DEWDNEY

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

The essential point of our tradition and our mathematics education is that we should never bow to the authority of some obscure rule that we can never hope to understand. We must see - at least in principle - that every step in a reasoning can be reduced to something simple and obvious. The mathematical truth is not a horribly complicated dogma whose validity is not subject to our understanding: it is built with simple and obvious ingredients, and once we understood them, their truth is clear and is accepted by all.
Sir Roger PENROSE

	1	**S**	(1659) Joseph SAURIN (1835) William Stankey JEVONS
	2	**S**	(1878) Mauriche René FRECHET (1923) René THOM RM080
35	**3**	**M**	(1814) James Joseph SYLVESTER RM104 (1884) Solomon LEFSCHETZ (1908) Lev Semenovich PONTRYAGIN
	4	**T**	(1809) Luigi Federico MENABREA RM150
	5	**W**	(1667) Giovanni Girolamo SACCHERI RM128 (1725) Jean Etienne MONTUCLA
	6	**T**	(1859) Boris Jakovlevich BUKREEV (1863) Dimitri Aleksandrovich GRAVE
	7	**F**	(1707) George Louis Leclerc comte de BUFFON (1955) Efim ZELMANOV
	8	**S**	(1584) Gregorius SAINT-VINCENT (1588) Marin MERSENNE RM092
	9	**S**	(1860) Frank MORLEY
36	**10**	**M**	(1839) Charles Sanders PEIRCE RM123
	11	**T**	(1623) Stefano degli ANGELI (1877) sir James Hopwood JEANS
	12	**W**	(1891) Antoine André Louis REYNAUD (1900) Haskell Brooks CURRY
	13	**T**	(1873) Constantin CARATHÉODORY (1885) Wilhelm Johann Eugen BLASCHKE
	14	**F**	(1858) Henry Burchard FINE (1891) Ivan Matveevich VINOGRADOV
	15	**S**	(973) Abu Arrayhan Muhammad ibn Ahmad AL'BIRUNI (1886) Paul Pierre LEVY
	16	**S**	(1494) Francisco MAUROLICO (1736) Johann Nikolaus TETENS
37	**17**	**M**	(1743) Marie Jean Antoine Nicolas de Caritat de CONDORCET (1826) Georg Friedrich Bernhard RIEMANN RM068
	18	**T**	(1752) Adrien Marie LEGENDRE RM140
	19	**W**	(1749) Jean Baptiste DELAMBRE
	20	**T**	(1842) Alexander Wilhelm von BRILL (1861) Frank Nelson COLE
	21	**F**	(1899) Juliusz Pawel SCHAUDER
	22	**S**	(1765) Paolo RUFFINI RM116 (1769) Louis PUISSANT (1803) Jaques Charles Francois STURM
	23	**S**	(1768) William WALLACE (1900) David van DANTZIG
38	**24**	**M**	(1501) Girolamo CARDANO RM064 (1625) Johan DE WITT (1801) Michail Vasilevich OSTROGRADSKI RM056 (1945) Ian Nicholas STEWART
	25	**T**	(1819) George SALMON (1888) Stefan MAZURKIEWICZ
	26	**W**	(1688) Willem Jakob 's GRAVESANDE (1854) Percy Alexander MACMAHON (1891) Hans REICHENBACH
	27	**T**	(1855) Paul Émile APPELL (1876) Earle Raymond HEDRICK (1919) James Hardy WILKINSON
	28	**F**	(1698) Pierre Louis Moreau de MAUPERTUIS RM152 (1761) Ferdinand Francois Desirè Budan de BOISLAURENT (1873) Julian Lowell COOLIDGE
	29	**S**	(1561) Adriaan van ROOMEN (1812) Adolph GOPEL
	30	**S**	(1775) Robert ADRAIN (1829) Joseph WOLSTENHOLME (1883) Ernst HELLINGER

Rudi Mathematici

September

Putnam 1997-B3

For each positive integer n, write the sum

$$\sum_{m=1}^{n} \frac{1}{m},$$

in the form $\frac{p_n}{q_n}$, where p_n and q_n are relatively prime positive integers. Determine all n such that 5 does not divide q_n.

Things That Math and Sex Have in Common

Both typically begin with a lot of hard work and end with a great but brief reward.

Mathematic Humour

What is the difference between a Psychotic, a Neurotic and a mathematician? A Psychotic believes that 2+2=10. A Neurotic knows that 2+2=4, but it kills him. A mathematician simply changes the base.

From the intrinsic evidence of his creation, the Great Architect of the Universe now begins to appear as a pure mathematician.

sir James Hopwood JEANS

His theorems were always correct: his demonstrations, never." [Said by Gian-Carlo Rota].

Solomon LEFSCHETZ

A moment of drowsiness and old errors are propagated, and new ones are introduced.

Francisco MAUROLICO

The one [the logician] studies the science of drawing conclusions, the other [the mathematician] the science which draws necessary conclusions.

Charles Sanders PEIRCE

Tools of the trade of the mathematician are pencil and paper: as a consequence, no mathematician will bring them with him, and should always borrow a pen and write on a napkin.

Ian Nicholas STEWART

(...) as Brindley, the engineer, once allowed before a parliamentary committee that, in his opinion, rivers were made to feed navigable canals, I feel almost tempted to say that one principal reason for the existence of space, or at least one principal function which it discharges, is that of feeding mathematical invention.

James Joseph SYLVESTER

39	**1**	**M**	(1671) Luigi Guido GRANDI (1898) Bela KEREKJARTO'	
	2	**T**	(1825) John James WALKER (1908) Arthur ERDÉLYI	
	3	**W**	(1944) Pierre René DELIGNE	
	4	**T**	(1759) Louis Francois Antoine ARBOGAST (1797) Jerome SAVARY	
	5	**F**	(1732) Nevil MASKELYNE (1781) Bernhard Placidus Johann Nepomuk BOLZANO (1861) Thomas Little HEATH	RM117
	6	**S**	(1552) Matteo RICCI (1831) Julius Wilhelm Richard DEDEKIND (1908) Sergei Lvovich SOBOLEV	RM141 RM081
	7	**S**	(1885) Niels BOHR	RM063
40	**8**	**M**	(1908) Hans Arnold HEILBRONN	
	9	**T**	(1581) Claude Gaspard BACHET de Meziriac (1704) Johann Andrea von SEGNER (1873) Karl SCHWARZSCHILD (1949) Fan Rong K Chung GRAHAM	 RM153 RM110
	10	**W**	(1861) Heinrich Friedrich Karl Ludwig BURKHARDT	
	11	**T**	(1675) Samuel CLARKE (1777) Barnabè BRISSON (1885) Alfred HAAR (1910) Cahit ARF	
	12	**F**	(1860) Elmer SPERRY	
	13	**S**	(1890) Georg FEIGL (1893) Kurt Werner Friedrich REIDEMEISTER (1932) John Griggs THOMSON	
	14	**S**	(1687) Robert SIMSON (1801) Joseph Antoine Ferdinand PLATEAU (1868) Alessandro PADOA	
41	**15**	**M**	(1608) Evangelista TORRICELLI (1735) Jesse RAMSDEN (1776) Peter BARLOW	
	16	**T**	(1879) Philip Edward Bertrand JOURDAIN	
	17	**W**	(1759) Jacob (II) BERNOULLI (1888) Paul Isaac BERNAYS	RM093
	18	**T**	(1741) John WILSON	
	19	**F**	(1903) Jean Frédéric Auguste DELSARTE (1910) Subrahmanyan CHANDRASEKHAR	 RM153
	20	**S**	(1632) Sir Christopher WREN (1863) William Henry YOUNG (1865) Aleksandr Petrovich KOTELNIKOV	RM105
	21	**S**	(1677) Nicolaus (I) BERNOULLI (1823) Enrico BETTI (1855) Giovan Battista GUCCIA (1914) Martin GARDNER	RM093 RM150 RM129 RM137
42	**22**	**M**	(1587) Joachim JUNGIUS (1895) Rolf Herman NEVANLINNA (1907) Sarvadaman CHOWLA	
	23	**T**	(1865) Piers BOHL	
	24	**W**	(1804) Wilhelm Eduard WEBER (1873) Edmund Taylor WHITTAKER	
	25	**T**	(1811) Évariste GALOIS	RM069
	26	**F**	(1849) Ferdinand Georg FROBENIUS (1857) Charles Max MASON (1911) Shiing-Shen CHERN	
	27	**S**	(1678) Pierre Remond de MONTMORT (1856) Ernest William HOBSON	
	28	**S**	(1804) Pierre François VERHULST	
43	**29**	**M**	(1925) Klaus ROTH	
	30	**T**	(1906) Andrej Nikolaevich TICHONOV	
	31	**W**	(1815) Karl Theodor Wilhelm WEIERSTRASS (1935) Ronald Lewis GRAHAM	RM057 RM110

Rudi Mathematici

October

Putnam 1997-B4

Let $a_{m,n}$ denote the coefficient of x^n in the expansion of $\left(1+x+x^2\right)^m$. Prove that for all integers $k \geq 0$,

$$0 \leq \sum_{i=0}^{\left\lfloor \frac{2k}{3} \right\rfloor} (-1)^i a_{k-i,i} \leq 1.$$

Things That Math and Sex Have in Common

Professionals are generally viewed with suspicion, and most do not earn high pay.

Mathematic Humour

This is a one line proof... if we start sufficiently far to the left...

Speaking of arithmetic (algebra, analysis) as a part of the logic, I imply that I consider the number concept entirely independent of the notions or intuitions of space and time, that I consider it a direct result of the laws of thought.

Julius Wilhelm Richard DEDEKIND

Mathematics is not only real, but it is the only reality. That is that entire universe is made of matter, obviously. And matter is made of particles. It's made of electrons and neutrons and protons. So the entire universe is made out of particles. Now what are the particles made out of? They're not made out of anything. The only thing you can say about the reality of an electron is to cite its mathematical properties. So there's a sense in which matter has completely dissolved and what is left is just a mathematical structure.

Martin GARDNER

It would be very discouraging if somewhere down the line you could ask a computer if the Riemann hypothesis is correct and it said, "Yes, it is true, but you won't be able to understand the proof.".

Ronald Lewis GRAHAM

Ptolemy the First once asked Euclid whether there was any shorter way to a knowledge of geometry than by study of The Elements, whereupon Euclid answered that there was no royal road to geometry.

Thomas Little HEATH

I urge to study mathematics also who is preparing to become a lawyer or economist, philosopher and writer ... for I believe and hope that it will not be useless to reason well and clearly express oneself.

Alessandro PADOA

	1	**T**	(1535) Giambattista DELLA PORTA
	2	**F**	(1815) George BOOLE RM094
	3	**S**	(1867) Martin Wilhelm KUTTA (1878) Arthur Byron COBLE (1906) Carl Benjamin BOYER
	4	**S**	(1744) Johann (III) BERNOULLI RM093 (1865) Pierre Simon GIRARD
44	**5**	**M**	(1848) James Whitbread Lee GLAISHER (1930) John Frank ADAMS
	6	**T**	(1781) Giovanni Antonio Amedeo PLANA RM154
	7	**W**	(1660) Thomas Fantet DE LAGNY (1799) Karl Heinrich GRAFFE (1898) Raphael SALEM
	8	**T**	(1656) Edmond HALLEY (1846) Eugenio BERTINI (1848) Fredrich Ludwig Gottlob FREGE (1869) Felix HAUSDORFF
	9	**F**	(1847) Carlo Alberto CASTIGLIANO (1885) Hermann Klaus Hugo WEYL RM082 (1906) Jaroslav Borisovich LOPATYNSKY (1922) Imre LAKATOS
	10	**S**	(1829) Helwin Bruno CHRISTOFFEL
	11	**S**	(1904) John Henry Constantine WHITEHEAD
45	**12**	**M**	(1825) Michail Egorovich VASHCHENKO-ZAKHARCHENKO (1842) John William STRUTT Lord RAYLEIGH (1927) Yutaka TANIYAMA
	13	**T**	(1876) Ernest Julius WILKZYNSKY (1878) Max Wilhelm DEHN
	14	**W**	(1845) Ulisse DINI
	15	**T**	(1688) Louis Bertrand CASTEL (1793) Michel CHASLES (1794) Franz Adolph TAURINUS
	16	**F**	(1835) Eugenio BELTRAMI RM150
	17	**S**	(1597) Henry GELLIBRAND (1717) Jean Le Rond D'ALEMBERT (1790) August Ferdinand MÖBIUS RM118
	18	**S**	(1872) Giovanni Enrico Eugenio VACCA (1927) Jon Leslie BRITTON
46	**19**	**M**	(1894) Heinz HOPF (1900) Michail Alekseevich LAVRENTEV (1901) Nina Karlovna BARI
	20	**T**	(1889) Edwin Powell HUBBLE (1924) Benoît MANDELBROT
	21	**W**	(1867) Dimitri SINTSOV
	22	**T**	(1803) Giusto BELLAVITIS (1840) Émile Michel Hyacinthe LEMOINE
	23	**F**	(1616) John WALLIS RM070 (1820) Issac TODHUNTER (1917) Elizabeth Leonard SCOTT RM106
	24	**S**	(1549) Duncan MacLaren Young SOMMERVILLE (1909) Gerhard GENTZEN
	25	**S**	(1841) Fredrich Wilhelm Karl Ernst SCHRÖDER (1873) Claude Louis MATHIEU
47	**26**	**M**	(1894) Norbert WIENER (1946) Enrico BOMBIERI
	27	**T**	(1867) Arthur Lee DIXON
	28	**W**	(1898) John WISHART
	29	**T**	(1803) Christian Andreas DOPPLER (1849) Horace LAMB (1879) Nikolay Mitrofanovich KRYLOV
	30	**F**	(1549) Sir Henry SAVILE (1969) Matilde MARCOLLI RM142

Rudi Mathematici

November

Putnam 1997-B5

Prove that for $n \geq 2$,

$$2^{2^{\cdots^{2}}}_{n} \equiv 2^{2^{\cdots^{2}}}_{n-1} \pmod{n}.$$

Things That Math and Sex Have in Common

Sometimes something useful comes out of it, but that is not the reason we are doing it.

Mathematic Humour

Yeah, I used to think it was just recreational... then I started doin' it during the week... you know, simple stuff: differentiation, kinematics. Then I got into integration by parts... I started doin' it every night: path integrals, holomorphic functions. Now I'm on diophantine equations and sinking deeper into transfinite analysis. Don't let them tell you it's just recreational. Fortunately, I can quit any time I want.

When things get too complicated, it sometimes makes sense to stop and wonder: Have I asked the right question?

Enrico BOMBIERI

Allez en avant, et la foi vous viendra.

Push on and faith will catch up with you. [advice to those who questioned the calculus].

Jean Le Rond D'ALEMBERT

Mathematics is the only instructional material that can be presented in an entirely undogmatic way.

Max Wilhelm DEHN

he only reason to believe in mathematic is that mathematic works.

Imre LAKATOS

[responding to Thomas Hobbes, who complained of a page "so covered with crusts of symbols that I did not have the patience to examine if it is proved right or wrong"] Would not it be legal for me to write symbols, until you can understand them? Lord, they are not written for you to read them, but for those who are able to do so.

John WALLIS

My work has always tried to unite the true with the beautiful and when I had to choose one or the other, I usually chose the beautiful.

Hermann Klaus Hugo WEYL

	1	**S**	(1792) Nikolay Yvanovich LOBACHEVSKY	RM083
	2	**S**	(1831) Paul David Gustav DU BOIS-REYMOND (1901) George Frederick James TEMPLE	
48	**3**	**M**	(1903) Sidney GOLDSTEIN (1924) John BACKUS	
	4	**T**	(1795) Thomas CARLYLE	
	5	**W**	(1868) Arnold Johannes Wilhelm SOMMERFELD (1901) Werner Karl HEISENBERG (1907) Giuseppe OCCHIALINI	 RM155 RM122
	6	**T**	(1682) Giulio Carlo FAGNANO dei Toschi	
	7	**F**	(1647) Giovanni CEVA (1823) Leopold KRONECKER (1830) Antonio Luigi Gaudenzio Giuseppe CREMONA	 RM150
	8	**S**	(1508) Regnier GEMMA FRISIUS (1865) Jaques Salomon HADAMARD (1919) Julia Bowman ROBINSON	
	9	**S**	(1883) Nikolai Nikolaievich LUZIN (1906) Grace Brewster MURRAY HOPPER (1917) Sergei Vasilovich FOMIN	
49	**10**	**M**	(1804) Karl Gustav Jacob JACOBI (1815) Augusta Ada KING Countess of LOVELACE	 RM059
	11	**T**	(1882) Max BORN	RM155
	12	**W**	(1832) Peter Ludwig Mejdell SYLOW	
	13	**T**	(1724) Franz Ulrich Theodosius AEPINUS (1887) George POLYA	 RM131
	14	**F**	(1546) Tycho BRAHE	
	15	**S**	(1802) János BOLYAI	RM083
	16	**S**	(1804) Wiktor Yakovievich BUNYAKOWSKY	
50	**17**	**M**	(1706) Gabrielle Emile Le Tonnelier de Breteuil du CHATELET (1835) Felice CASORATI (1842) Marius Sophus LIE (1900) Dame Mary Lucy CARTWRIGHT	
	18	**T**	(1917) Roger LYNDON	
	19	**W**	(1783) Charles Julien BRIANCHON (1854) Marcel Louis BRILLOUIN (1887) Charles Galton DARWIN	 RM138
	20	**T**	(1494) Oronce FINE (1648) Tommaso CEVA (1875) Francesco Paolo CANTELLI	
	21	**F**	(1878) Jan ŁUKASIEWICZ (1932) John Robert RINGROSE	
	22	**S**	(1824) Francesco BRIOSCHI (1859) Otto Ludwig HÖLDER (1877) Tommaso BOGGIO (1887) Srinivasa Aiyangar RAMANUJAN	RM150
	23	**S**	(1872) Georgii Yurii PFEIFFER	
51	**24**	**M**	(1822) Charles HERMITE (1868) Emmanuel LASKER	RM095
	25	**T**	(1642) Isaac NEWTON (1900) Antoni ZYGMUND	RM071
	26	**W**	(1780) Mary Fairfax Greig SOMERVILLE (1791) Charles BABBAGE (1937) John Horton CONWAY	 RM059 RM119
	27	**T**	(1571) Johannes KEPLER (1654) Jacob (Jacques) BERNOULLI	 RM093
	28	**F**	(1808) Athanase Louis Victoire DUPRÈ (1882) Arthur Stanley EDDINGTON (1903) John von NEUMANN	 RM107
	29	**S**	(1856) Thomas Jan STIELTJES	
	30	**S**	(1897) Stanislaw SAKS	
52	**31**	**M**	(1872) Volodymyr LEVITSKY (1896) Carl Ludwig SIEGEL (1945) Leonard ADLEMAN (1952) Vaughan Frederick Randall JONES	 RM143

Rudi Mathematici

December

Putnam 1997-B6

The diameter of a dissection is the least upper bound of the distances between pairs of points belonging to the same part. The dissection of the 3-4-5 triangle in four congruent right triangles similar to the original has diameter 5/2. Find the least diameter of a dissection of this triangle into four parts.

Things That Math and Sex Have in Common

Half the times you get an odd result.

Mathematic Humour

The highest moments in the life of a mathematician are the first few moments after one has proved the result, but before one finds the mistake.

Errors using inadequate data are much less than those using no data at all.

Charles BABBAGE

It is a mathematical fact that the casting of this pebble from my hand alters the centre of gravity of the universe.

Thomas CARLYLE

There is one thing the non-mathematicians do not realize, is that mathematics is actually almost entirely an aesthetic subject.

John Horton CONWAY

Each new piece of knowledge is mathematical in form, because we have no other guide possible.

Charles Galton DARWIN

Proof is the idol before whom the pure mathematician tortures himself.

Arthur Stanley EDDINGTON

Die ganzen Zahlen hat der liebe Gott gemacht, alles andere ist Menschenwerk.

(God made the integers, all else is the work of man).

Leopold KRONECKER

Hypotheses non fingo.

(I feign no hypotheses).

Isaac NEWTON

[Her Job Description:] Monday: Try to prove theorem, Tuesday: Try to prove theorem, Wednesday: Try to prove theorem, Thursday: Try to prove theorem, Friday: Theorem false.

Julia Bowman ROBINSON