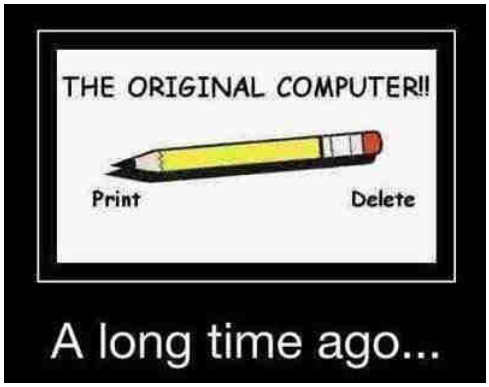
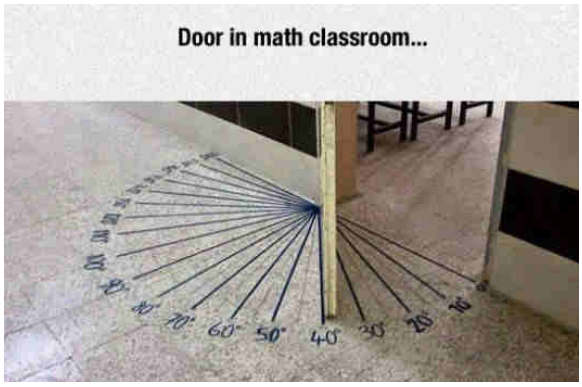
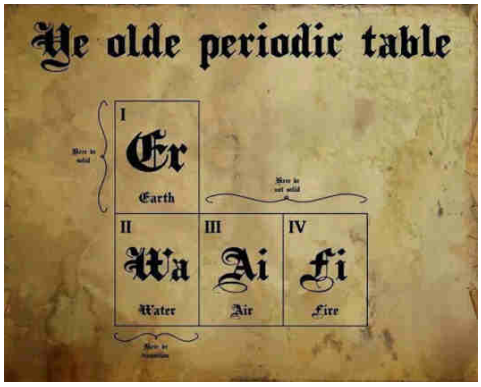
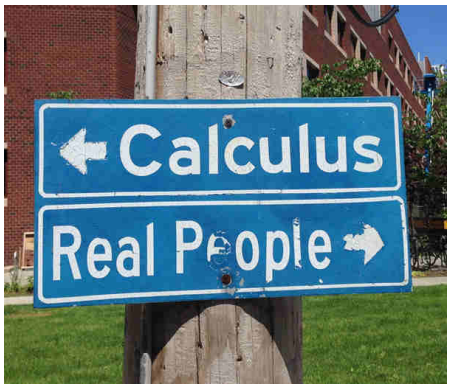
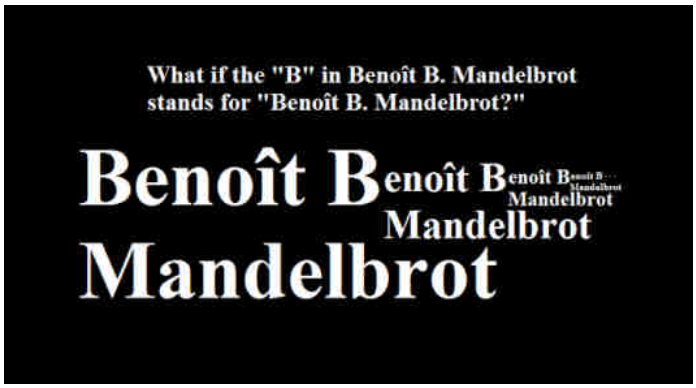
$$x^3 - 6'150x^2 + 12'606'716x - 8'613'517'800 = 0$$











	1	S	(1803) Guglielmo Libri Carucci dalla Sommaja (1878) Agner Krarup Erlang (1894) Satyendranath Bose (1912) Boris Gnedenko	RM132 RM168
	2	S	(1822) Rudolf Julius Emmanuel Clausius (1905) Lev Genrichovich Shnirelman (1938) Anatoly Samoilenko	RM240
1	3	M	(1777) Louis Poinsot (1917) Yuri Alexeievich Mitropolsky	
	4	T	(1643) Isaac Newton	RM071
	5	W	(1838) Marie Ennemond Camille Jordan (1871) Federigo Enriques (1871) Gino Fano	 RM084
	6	T	(1807) Jozeph Mitza Petzval (1841) Rudolf Sturm	
	7	F	(1871) Felix Edouard Justin Émile Borel (1907) Raymond Edward Alan Christopher Paley (1925) Walter Noll	
	8	S	(1888) Richard Courant (1924) Paul Moritz Cohn (1942) Stephen William Hawking	RM156
	9	S	(1864) Vladimir Adreievich Steklov (1882) Pavel Aleksandrovitch Florenskij (1915) Mollie Orshansky	 RM252
2	10	M	(1875) Issai Schur (1905) Ruth Moufang	
	11	T	(1545) Guidobaldo del Monte (1707) Vincenzo Riccati (1734) Achille Pierre Dionis du Sejour	RM120
	12	W	(1853) Gregorio Ricci-Curbastro (1906) Kurt August Hirsch (1915) Herbert Ellis Robbins	 RM156
	13	T	(1864) Wilhelm Karl Werner Otto Fritz Franz Wien (1876) Luther Pfahler Eisenhart (1876) Erhard Schmidt	
	14	F	(1901) Alfred Tarski	RM096
	15	S	(1704) Johann Castillon (1717) Mattew Stewart (1850) Sofia Vasilievna Kovalevskaya	 RM144
	16	S	(1801) Thomas Klausen	
3	17	M	(1647) Catherina Elisabetha Koopman Hevelius (1847) Nikolay Egorovich Zukowsky (1858) Gabriel Koenigs	RM264
	18	T	(1856) Luigi Bianchi (1880) Paul Ehrenfest	 RM204
	19	W	(1813) Rudolf Friedrich Alfred Clebsch (1879) Guido Fubini (1908) Aleksandr Gennadievich Kurosh	
	20	T	(1775) André Marie Ampère (1895) Gabor Szegő (1904) Renato Caccioppoli	 RM072
	21	F	(1846) Pieter Hendrik Schoute (1882) Pavel Aleksandrovitch Florenskij (1915) Yuri Vladimirovich Linnik	 RM252
	22	S	(1561) Francis Bacon (1592) Pierre Gassendi (1908) Lev Davidovich Landau	 RM228
	23	S	(1840) Ernst Abbe (1862) David Hilbert	 RM060
4	24	M	(1891) Abram Samoilovitch Besicovitch (1902) Oskar Morgenstern (1914) Vladimir Petrovich Potapov	
	25	T	(1627) Robert Boyle (1736) Joseph-Louis Lagrange (1843) Karl Hermann Amandus Schwarz	 RM048
	26	W	(1799) Benoît Paul Émile Clapeyron (1849) Francesco Flores D'Arcais (1862) Eliakim Hastings Moore	
	27	T	(1832) Charles Lutwidge Dodgson	RM108
	28	F	(1611) Johannes Hevelius (1701) Charles Marie de La Condamine (1892) Carlo Emilio Bonferroni	RM264
	29	S	(1817) William Ferrel (1888) Sidney Chapman	
	30	S	(1619) Michelangelo Ricci	RM216
5	31	M	(1715) Giovanni Francesco Fagnano dei Toschi (1841) Samuel Loyd (1896) Sofia Alexandrovna Janowskaja	 RM192

Rudi Mathematici

January

Putnam 2007, A1

Find all values of a for which the curves $y = ax^2 + ax + 1/24$ and $x = ay^2 + ay + 1/24$ are tangent to each other.

Why "π" is inferior to "e"

You can't confuse *e* with a food product.

Why "e" is inferior to "π"

e is less challenging to spell than *π*.

Why Astronomy is better than sex

If you get tired, wait ten minutes and try it again.

In the mathematics I can report no deficience, except it be that men do not sufficiently understand this excellent use of the pure mathematics, in that they do remedy and cure many defects in the wit and faculties intellectual. For if the wit be too dull, they sharpen it; if too wandering, they fix it; if too inherent in the sense, they abstract it. So that as tennis is a game of no use in itself, but of great use in respect it maketh a quick eye and a body ready to put itself into all postures, so in the mathematics that use which is collateral and intervenient is no less worthy than that which is principal and intended.

Francis Bacon

Thousands of mystics of all time have knocked with tenfold force on the windows and doors of the palace of science, and if they don't let them in graciously they will enter using force, breaking down precious doors in their path.

Pavel Aleksandrovitch Florenskij

The most distinctive characteristic which differentiates mathematics from the various branches of empirical science, and which accounts for its fame as the queen of the sciences, is no doubt the peculiar certainty and necessity of its results.

Carl G. Hempel

A problem in number theory is as timeless as a true work of art.

David Hilbert

Everyone makes for himself a clear idea of the motion of a point, that is to say, of the motion of a corpuscle which one supposes to be infinitely small, and which one reduces by thought in some way to a mathematical point.

Louis Poinsot

Just as liberal feminists often settle for a minimal program of legal and social equality for women and advocate for the possibility of "choices", so liberal mathematicians (and even some socialists) are often content to work within the hegemonic context of Zermelo-Fraenkel (which, reflecting its nineteenth-century origin, already incorporates the axioms of equality) strengthened only by the axiom of choice. But this framework is wholly insufficient for liberating mathematics, as Paul Cohen proved long ago in 1966.

Alan Sokal

	1	T	(1900) John Charles Burkill	
	2	W	(1522) Lodovico Ferrari	
			(1893) Cornelius Lanczos	
			(1897) Gertrude Blanch	RM229
	3	T	(1893) Gaston Maurice Julia	RM073
	4	F	(1905) Eric Cristopher Zeeman	RM241
	5	S	(1757) Jean Marie Constant Duhamel	
	6	S	(1465) Scipione del Ferro	RM064
			(1612) Antoine Arnauld	
			(1695) Nicolaus (II) Bernoulli	RM093
6	7	M	(1877) Godfried Harold Hardy	RM049
			(1883) Eric Temple Bell	
	8	T	(1700) Daniel Bernoulli	RM093
			(1875) Francis Ysidro Edgeworth	
			(1928) Ennio de Giorgi	RM133
	9	W	(1775) Farkas Wolfgang Bolyai	
			(1907) Harold Scott Macdonald Coxeter	RM097
	10	T	(1747) Aida Yasuaki	RM121
			(1932) Vivienne Malone-Mayes	
	11	F	(1657) Bernard Le Bovier de Fontenelle	
			(1800) William Henry Fox Talbot	RM205
			(1839) Josiah Willard Gibbs	
			(1915) Richard Wesley Hamming	
	12	S	(1914) Hanna Caemmerer Neumann	
			(1921) Kathleen Rita Mcnulty Mauchly Antonelli	
	13	S	(1805) Johann Peter Gustav Lejeune Dirichlet	RM145
7	14	M	(1468) Johann Werner	RM253
			(1849) Hermann Hankel	
			(1877) Edmund Georg Hermann Landau	RM063
			(1896) Edward Artur Milne	
			(1932) Maurice Audin	RM194
	15	T	(1564) Galileo Galilei	RM085
			(1850) Sophie Willock Bryant	
			(1861) Alfred North Whitehead	
			(1946) Douglas Hofstadter	
	16	W	(1822) Francis Galton	
			(1903) Beniamino Segre	
	17	T	(1890) Sir Ronald Aylmer Fisher	
			(1891) Adolf Abraham Halevi Fraenkel	
			(1905) Rózsa Péter	
	18	F	(1404) Leon Battista Alberti	RM157
			(1919) Clifford Ambrose Truesdell III	
	19	S	(1473) Nicolaus Copernicus	RM181
	20	S	(1844) Ludwig Boltzmann	RM061
8	21	M	(1591) Girard Desargues	
			(1915) Evgeny Michailovich Lifshitz	
	22	T	(1857) Heinrich Rudolf Hertz	
			(1903) Frank Plumpton Ramsey	RM217
	23	W	(1561) Henry Briggs	RM169
			(1583) Jean-Baptiste Morin	
			(1730) Giulio Giuseppe Mozzi del Garbo	
			(1905) Derrick Henry Lehmer	RM215
			(1922) Anneli Cahn Lax	
			(1951) Shigefumi Mori	
	24	T	(1871) Felix Bernstein	
	25	F	(1827) Henry Watson	
	26	S	(1786) Dominique Francois Jean Arago	RM193
	27	S	(1881) Luitzen Egbertus Jan Brouwer	
9	28	M	(1735) Alexandre Théophile Vandermonde	RM265
	29		(1860) Herman Hollerith	RM109

Rudi Mathematici

February

Putnam 2007, A2

Find the least possible area of a convex set in the plane that intersects both branches of the hyperbola $xy = 1$ and both branches of the hyperbola $xy = -1$. (A set S in the plane is called *convex* if for any two points in S the line segment connecting them is contained in S.)

Why "π" is inferior to "e"

You don't need to know Greek to be able to use *e*.

Why "e" is inferior to "π"

e~=2.718281828459045, which can be easily memorized to its billionth place, whereas π needs "skills" to be memorized.

Why Astronomy is better than sex

Nobody cares if you are ugly.

We did have desk calculators at that time, mechanical and driven with electric motors, that could do simple arithmetic. You'd do a multiplication and when the answer appeared, you had to write it down to reenter it into the machine to do the next calculation. We were preparing a firing table for each gun, with maybe 1800 *simple trajectories. To hand-compute just one of these trajectories took* 30 *or* 40 *hours of sitting at a desk with paper and a calculator. As you can imagine, they were soon running out of young women to do the calculations. Actually, my title working for the ballistics project was "computer". The idea was that I not only did arithmetic but also made the decision on what to do next. ENIAC made me, one of the first "computers", obsolete.*

Kathleen Rita Mcnulty Mauchly Antonelli

Nothing proves more clearly that the mind seeks truth, and nothing reflects more glory upon it, than the delight it takes, sometimes in spite of itself, in the driest and thorniest researches of algebra.

Bernard Le Bovier De Fontenelle

Whereas at the outset geometry is reported to have concerned herself with the measurement of muddy land, she now handles celestial as well as terrestrial problems: she has extended her domain to the furthest bounds of space.

W.B. Frankland

[Statistics are] the only tools by which an opening may be cut through the formidable thicket of difficulties that bars the path of those who pursue the Science of Man.

Francis Galton

Life is an offensive, directed against the repetitious mechanism of the Universe.

Alfred North Whitehead

	1	T	(1611) John Pell (1879) Robert Daniel Carmichael	
	2	W	(1836) Julius Weingarten	
	3	T	(1838) George William Hill (1845) Georg Cantor (1916) Paul Richard Halmos	RM062
	4	F	(1822) Jules Antoine Lissajous	
	5	S	(1512) Gerardus Mercator (1759) Benjamin Gompertz (1817) Angelo Genocchi (1885) Pauline Sperry (1915) Laurent Schwartz (1931) Vera Pless	RM230 RM194
	6	S	(1866) Ettore Bortolotti	
10	7	M	(1792) William Herschel (1824) Delfino Codazzi (1922) Olga Alexandrovna Ladyzhenskaya	RM146
	8	T	(1851) George Chrystal	
	9	W	(1818) Ferdinand Joachimsthal (1900) Howard Hathaway Aiken	
	10	T	(1864) William Fogg Osgood (1872) Mary Ann Elizabeth Stephansen	
	11	F	(1811) Urbain Jean Joseph Le Verrier (1853) Salvatore Pincherle (1870) Louis Bachelier	RM158
	12	S	(1685) George Berkeley (1824) Gustav Robert Kirchhoff (1859) Ernesto Cesaro	
	13	S	(1861) Jules Joseph Drach (1957) Rudy D'Alembert	
11	14	M	(1864) Jozef Kurschak (1879) Albert Einstein (1882) Wacław Sierpiński (1904) Lyudmila Vsevolodovna Keldysh	RM074 RM271 RM266
	15	T	(1860) Walter Frank Raphael Weldon (1868) Grace Chisolm Young	
	16	W	(1750) Caroline Herschel (1789) Georg Simon Ohm (1846) Magnus Gosta Mittag-Leffler	RM146
	17	T	(1876) Ernest Benjamin Esclangon (1897) Charles Fox (1915) Wolfgang (Vincent) Döblin (Doblin)	RM254
	18	F	(1640) Philippe de La Hire (1690) Christian Goldbach (1796) Jacob Steiner (1870) Agnes Sime Baxter	RM122
	19	S	(1862) Adolf Kneser (1910) Jacob Wolfowitz	
	20	S	(1840) Franz Mertens (1884) Philip Franck (1938) Sergei Petrovich Novikov	
12	21	M	(1768) Jean Baptiste Joseph Fourier (1884) George David Birkhoff	RM242
	22	T	(1394) Ulugh Beg (1891) Lorna Mary Swain (1917) Irving Kaplansky (1944) Margaret Hilary Ashworth Millington	RM206
	23	W	(1749) Pierre-Simon de Laplace (1754) Georg Freiherr von Vega (1882) Emmy Amalie Noether (1897) John Lighton Synge	RM050
	24	T	(1809) Joseph Liouville (1948) Sun-Yung (Alice) Chang (1966) Gigliola Staffilani	RM142
	25	F	(1538) Christopher Clausius	
	26	S	(1848) Konstantin Andreev (1913) Paul Erdős	RM110
	27	S	(1857) Karl Pearson	
13	28	M	(1928) Alexander Grothendieck	RM086
	29	T	(1825) Francesco Faà Di Bruno (1873) Tullio Levi-Civita (1896) Wilhelm Ackermann	RM170 RM098
	30	W	(1892) Stefan Banach (1921) Alfréd Rényi	RM134
	31	T	(1596) René Descartes	RM218

March

Putnam 2007, A3

Let k be a positive integer. Suppose that the integers 1, 2, 3, …, $3k + 1$ are written down in random order. What is the probability that at no time during this process, the sum of the integers that have been written up to that time is a positive integer divisible by 3? Your answer should be in closed form, but may include factorials.

Why "π" is inferior to "e"

e stands for Euler's Number, π doesn't stand for squat.

Why "e" is inferior to "π"

To read π, you don't have to know that Euler's name is really pronounced Oiler.

Why Astronomy is better than sex

Forty years from now, you can still participate regularly.

There should be a general science that explains everything that can be known about order and measure, considered independently of each application to a particular subject [...] and indeed this science has a proper name, consecrated by a long use, which is mathematics.

René Descartes

The most beautiful thing we can experience is the mysterious. It is the source of all true art and science.

Albert Einstein

[About Fourier] It was, no doubt, partially because of his very disregard for rigor that he was able to take conceptual steps which were inherently impossible to men of more critical genius.

Rudolph E. Langer

It is India that gave us the ingenious method of expressing all numbers by means of ten symbols, each symbol receiving a value of position as well as an absolute value; a profound and important idea which appears so simple to us now that we ignore its true merit. But its very simplicity and the great ease which it has lent to computations put our arithmetic in the first rank of useful inventions; and we shall appreciate the grandeur of the achievement the more when we remember that it escaped the genius of Archimedes and Apollonius, two of the greatest men produced by antiquity.

Pierre-Simon De Laplace

The mathematician, carried on by his river of symbols, dealing with what appears to be purely formal truth, can nevertheless achieve results of endless importance for our description of the physical universe.

Karl Pearson

[told by David Harbater] Starting with 75 students, the class quickly dwindled to 20 by the end of the second semester. Of these, only ten really knew what they were doing. Of those ten, eight would become math professors and one physics professors. The tenth was Richard Stallman.

Richard Matthew Stallman

	1	F	(1640) Georg Mohr (1776) Marie-Sophie Germain (1895) Alexander Craig Aitken	RM219
	2	S	(1878) Edward Kasner (1934) Paul Joseph Cohen (1984) Alessio Figalli	RM243
	3	S	(1835) John Howard Van Amringe (1892) Hans Rademacher (1900) Albert Edward Ingham (1971) Alice Riddle	
14	4	M	(1809) Benjamin Peirce (1842) François Édouard Anatole Lucas (1949) Shing-Tung Yau	RM123
	5	T	(1588) Thomas Hobbes (1607) Honoré Fabri (1622) Vincenzo Viviani (1869) Sergei Alexeievich Chaplygin	
	6	W	(1801) William Hallowes Miller	
	7	T	(1768) François-Joseph Français	
	8	F	(1903) Marshall Harvey Stone	
	9	S	(1791) George Peacock (1816) Charles Eugene Delaunay (1894) Cypra Cecilia Krieger Dunaij (1919) John Presper Heckert	
	10	S	(1857) Henry Ernest Dudeney	RM183
15	11	M	(1953) Andrew John Wiles	RM207
	12	T	(1794) Germinal Pierre Dandelin (1852) Carl Louis Ferdinand von Lindemann (1903) Jan Tinbergen	RM267
	13	W	(1728) Paolo Frisi (1813) Duncan Farquharson Gregory (1869) Ada Isabel Maddison (1879) Francesco Severi (1909) Stanislaw Marcin Ulam	RM171
	14	T	(1629) Christiaan Huygens	RM135
	15	F	(1452) Leonardo da Vinci (1548) Pietro Antonio Cataldi (1707) Leonhard Euler (1809) Herman Gunther Grassmann	RM051
	16	S	(1682) John Hadley (1823) Ferdinand Gotthold Max Eisenstein	
	17	S	(1798) Étienne Bobillier (1853) Arthur Moritz Schonflies (1863) Augustus Edward Hough Love	
16	18	M	(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	W	(1839) Francesco Siacci	
	21	T	(1652) Michel Rolle (1774) Jean Baptiste Biot (1875) Teiji Takagi	RM231
	22	F	(1811) Otto Ludwig Hesse (1887) Harald August Bohr (1935) Bhama Srinivasan (1939) Sir Michael Francis Atiyah	RM063
	23	S	(1858) Max Karl Ernst Ludwig Planck (1910) Sheila Scott Macintyre	
	24	S	(1863) Giovanni Vailati (1899) Oscar Zariski	RM099
17	25	M	(1849) Felix Christian Klein (1900) Wolfgang Pauli (1903) Andrei Nicolayevich Kolmogorov	RM255 RM159
	26	T	(1889) Ludwig Josef Johan Wittgenstein	
	27	W	(1755) Marc-Antoine Parseval des Chenes (1932) Gian-Carlo Rota	RM195
	28	T	(1906) Kurt Gödel	RM087
	29	F	(1854) Jules Henri Poincaré	RM075
	30	S	(1777) Johann Carl Friedrich Gauss (1916) Claude Elwood Shannon	RM147 RM111

April

Putnam 2007, A4

A *repunit* is a positive integer whose digits in base 10 are all ones. Find all polynomials f with real coefficients such that if n is a repunit, then so is $f(n)$.

Why "π" is inferior to "e"

e is easier to spell than π.

Why "e" is inferior to "π"

The character for *e* is so cheap that it can be found on a keyboard. But π is special (it's under "special symbols" in word processor programs.).

Why Astronomy is better than sex

Doesn't matter if kids hear you moaning, oohing and aahing.

It is the most self-evident truth, immediately evident to unsophisticated observation, that mathematics is a human invention.

Percy Williams Bridgman

Finally, two days ago, I succeeded – not on account of my hard efforts, but by the grace of the Lord. Like a sudden flash of lightning, the riddle was solved. I am unable to say what was the conducting thread that connected what I previously knew with what made my success possible.

Johann Carl Friedrich Gauss

... the science of calculus is even indispensable up to the extraction of square and cubic roots; algebra up to second degree equations and the use of logarithms often has value in the usual cases; but all that beyond that is mere lust. A delightful lust, nothing to say: but which must not indulge anyone who has to execute a profession for his subsistence.

Thomas Jefferson

What is it indeed that gives us the feeling of elegance in a solution, in a demonstration? It is the harmony of the diverse parts, their symmetry, their happy balance; in a word it is all that introduces order, all that gives unity, that permits us to see clearly and to comprehend at once both the ensemble and the details.

Jules Henri Poincarè

Though this be madness, yet there is method in't.

William Shakespeare

For all their wealth of content, for all the sum of history and social institution invested in them, music, mathematics, and chess are resplendently useless (applied mathematics is a higher plumbing, a kind of music for the police band). They are metaphysically trivial, irresponsible. They refuse to relate outward, to take reality for arbiter. This is the source of their witchery.

G. Steiner

After watching a thunderstorm, when asked "how many raindrops did you see?" the most suitable answer is "many": not that the precise number does not exist, but it cannot be known.

Ludwig Josef Johan Wittgenstein

	1	**S**	(1825) Johann Jacob Balmer	RM122
			(1908) Morris Kline	
			(1977) Maryam Mirzakhani	RM189
18	**2**	**M**	(1860) D'Arcy Wentworth Thompson	RM138
			(1905) Kazimierz Zarankiewitz	
	3	**T**	(1842) Otto Stolz	
			(1860) Vito Volterra	RM136
			(1892) George Paget Thomson	RM161
	4	**W**	(1845) William Kingdon Clifford	
	5	**T**	(1833) Lazarus Emmanuel Fuchs	
			(1883) Anna Johnson Pell Wheeler	
			(1889) René Eugène Gateaux	RM196
			(1897) Francesco Giacomo Tricomi	RM256
			(1923) Cathleen Synge Morawetz	
	6	**F**	(1872) Willem de Sitter	
			(1906) André Weil	RM088
	7	**S**	(1854) Giuseppe Veronese	RM220
			(1881) Ebenezer Cunningham	
			(1896) Pavel Sergieievich Alexandrov	
			(1926) Alexis Claude Clairaut	
	8	**S**	(1859) Johan Ludwig William Valdemar Jensen	
			(1905) Winifred Lydia Caunden Sargent	
19	**9**	**M**	(1746) Gaspard Monge	RM208
			(1876) Gilbert Ames Bliss	
			(1965) Karen Ellen Smith	
	10	**T**	(1788) Augustin Jean Fresnel	
			(1847) William Karl Joseph Killing	
			(1904) Edward James Mcshane	
			(1958) Piotr Rezierovich Silverbrahms	
	11	**W**	(1902) Edna Ernestine Kramer Lassar	
			(1918) Richard Phillips Feynman	RM076
	12	**T**	(1820) Florence Nightingale	RM104
			(1845) Pierre René Jean Baptiste Henry Brocard	
			(1902) Frank Yates	
	13	**F**	(1750) Lorenzo Mascheroni	
			(1899) Pelageia Yakovlevna Polubarinova Kochina	
	14	**S**	(1832) Rudolf Otto Sigismund Lipschitz	
			(1863) John Charles Fields	RM100
	15	**S**	(1939) Brian Hartley	
			(1964) Sijue Wu	
20	**16**	**M**	(1718) Maria Gaetana Agnesi	RM112
			(1821) Pafnuti Lvovi Chebyshev	
			(1911) John (Jack) Todd	RM139
	17	**T**	(1940) Alan Kay	
	18	**W**	(1850) Oliver Heaviside	RM160
			(1892) Bertrand Arthur William Russell	RM052
	19	**T**	(1865) Flora Philip	
			(1919) Georgii Dimitirievich Suvorov	
	20	**F**	(1861) Henry Seely White	
	21	**S**	(1471) Albrecht Dürer	RM124
			(1792) Gustave Gaspard de Coriolis	
	22	**S**	(1865) Alfred Cardew Dixon	
21	**23**	**M**	(1914) Lipa Bers	RM148
	24	**T**	(1544) William Gilbert	
	25	**W**	(1838) Karl Mikailovich Peterson	
			(1979) Elena Tosato	RM268
	26	**T**	(1667) Abraham de Moivre	
			(1896) Yuri Dimitrievich Sokolov	
	27	**F**	(1862) John Edward Campbell	
	28	**S**	(1676) Jacopo Francesco Riccati	RM232
			(1710) Johann (II) Bernoulli	RM093
	29	**S**	(1882) Harry Bateman	
22	**30**	**M**	(1814) Eugene Charles Catalan	RM184
	31	**T**	(1926) John Kemeny	

May

Putnam 2007, A5

Suppose that a finite group has exactly n elements of order p, where p is a prime. Prove that either $n = 0$ or p divides $n + 1$.

Why "π" is inferior to "e"

$\pi\sim$= 3.14 while $e\sim$=2.718281828459045.

Why "e" is inferior to "π"

π is much shorter and easier to say than "Euler's Number".

Why Astronomy is better than sex

You can do it all night.

The mathematician begins with a few propositions, the proof of which is so obvious that they are said to be obvious, and the rest of his work consists of ingenious deductions from them. Language teaching, as practiced in general, is of the same general nature: authority and tradition provide the data, and mental operations are deductive.

Thomas Henry Huxley

Projective geometry: a limitless domain of countless fields where real and imaginary, finite and infinite, enter into full equality, where the spirit delights in the artistic balance and symmetrical reciprocity of a sort of conceptual and logical counterpoint – an enchanted realm where thought splits and flows everywhere in parallel flows.

Cassius Jackson Keyser

Reine Mathematik ist Religion – Pure mathematics is religion.

Novalis

The method of "postulating" what we want has many advantages; they are the same as the advantages of theft over honest toil.

Bertrand Arthur William Russell

Did you know? The square built on the hypotenuse is double the one on the catheti but the quality is poor and after a year you throw it away! That's it! It happened to my sister! Trust me!

Vulvia

Nobody since Newton has been able to use geometrical methods to the same extent for the like purposes; and as we read the Principia we feel as when we are in an ancient armoury where the weapons are of gigantic size; and as we look at them we marvel what manner of man he was who could use as a weapon what we can scarcely lift as a burden.

William Whewell

	1	W	(1796) Sadi Leonard Nicolas Carnot (1851) Edward Bailey Elliott (1899) Edward Charles Titchmarsh	
	2	T	(1895) Tibor Radó	
	3	F	(1659) David Gregory (1954) Susan Landau	
	4	S	(1809) John Henry Pratt (1966) Svetlana Yakovlevna Jitomirskaya	 RM197
	5	S	(1814) Pierre Laurent Wantzel (1819) John Couch Adams (1883) John Maynard Keynes	RM065 RM269
23	6	M	(1436) Johann Müller Regiomontanus (1857) Aleksandr Michailovitch Lyapunov (1906) Max August Zorn	RM185 RM077
	7	T	(1863) Edward Burr Van Vleck	
	8	W	(1625) Giovanni Domenico Cassini (1858) Charlotte Angas Scott (1860) Alicia Boole Stott (1896) Eleanor Pairman (1923) Gloria Olive (1924) Samuel Karlin	RM245 RM209
	9	T	(1885) John Edensor Littlewood	RM049
	10	F	(940) Mohammad Abu'L Wafa Al-Buzjani (1887) Vladimir Ivanovich Smirnov	RM257 RM101
	11	S	(1881) Hilda Phoebe Hudson (1937) David Bryant Mumford	
	12	S	(1888) Zygmunt Janyszewski (1937) Vladimir Igorevich Arnold	 RM221
24	13	M	(1831) James Clerk Maxwell (1872) Jessie Chrystal Macmillan (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 RM233
	15	W	(1640) Bernard Lamy (1894) Nikolai Gregorievich Chebotaryov	
	16	T	(1915) John Wilder Tukey	
	17	F	(1898) Maurits Cornelius Escher	RM097
	18	S	(1858) Andrew Russell Forsyth (1884) Charles Ernest Weatherburn (1884) Frieda Nugel (1913) Paul Teichmüller (1915) Alice Turner Schafer	 RM148
	19	S	(1623) Blaise Pascal (1902) Wallace John Eckert	RM053
25	20	M	(1873) Alfred Loewy (1917) Helena Rasiowa	
	21	T	(1781) Simeon Denis Poisson (1828) Giuseppe Bruno (1870) Maria Skłodowska Curie	 RM182
	22	W	(1822) Mario Pieri (1864) Hermann Minkowsky (1910) Konrad Zuse (1932) Mary Wynne Warner	
	23	T	(1912) Alan Mathison Turing	RM089
	24	F	(1880) Oswald Veblen	
	25	S	(1908) William Van Orman Quine	
	26	S	(1824) William Thomson, Lord Kelvin (1918) Yudell Leo Luke	RM161
26	27	M	(1806) Augustus de Morgan	
	28	T	(1875) Henri Léon Lebesgue	RM173
	29	W	(1888) Aleksandr Aleksandrovich Friedmann (1979) Artur Avila Cordeiro de Melo	RM101 RM189
	30	T	(1791) Felix Savart (1958) Abigail Thompson	

June

Putnam 2007, A6

A *triangulation* T of a polygon P is a finite collection of triangles whose union is P, and such that the intersection of any two triangles is either empty, or a shared vertex, or a shared side. Moreover, each side is a side of exactly one triangle in T. Say that T is *admissible* if every internal vertex is shared by 6 or more triangles. Prove that there is an integer M_n, depending only on n, such that any admissible triangulation of a polygon P with n sides has at most M_n triangles.

Why "π" is inferior to "e"

The character for e can be found on a keyboard, but π sure can't.

Why "e" is inferior to "π"

e is named after a person, but π stands for itself.

Why Astronomy is better than sex

Less guilt the next morning.

Revolutions never occur in mathematics.

Michael Crowe

The nation of Italy, as we know it today, was born in the 1860s following the Risorgimento, a movement of national awareness that flourished around the middle of the nineteenth century. Thus relieved of the distractions of having their own nation, the Italians resumed their great tradition, filling the end of the 19th century with some important scholars: Enrico Betti, Francesco Brioschi, Luigi Cremona, Eugenio Beltrami.

John Derbyshire

Dead scientists tend to become lunar and planetary features, dead mathematicians e-mail servers.

Robert & Ellen Kaplan

A linguist would be shocked to learn that if a set is not closed this does not mean that it is open, or again that "E is dense in E" does not mean the same thing as "E is dense in itself".

John Edensor Littlewood

There are two types of mind... the mathematical, and what might be called the intuitive. The former arrives at its views slowly, but they are firm and rigid; the latter is endowed with greater flexibility and applies itself simultaneously to the diverse lovable parts of that which it loves.

Blaise Pascal

Wherever there are numbers there is beauty and we are in the immediate vicinity of art.

Andreas Speiser

July

	1	**F**	(1643) Gottfried Wilhelm von Leibniz	RM054
			(1788) Jean-Victor Poncelet	
			(1906) Jean Alexandre Eugène Dieudonné	RM246
	2	**S**	(1820) William John Racquorn Rankine	
			(1852) William Burnside	
			(1925) Olga Arsen'evna Oleinik	
	3	**S**	(1807) Ernest Jean Philippe Fauque de Jonquières	RM162
			(1897) Jesse Douglas	
27	**4**	**M**	(1906) Daniel Edwin Rutherford	
			(1917) Michail Samoilovich Livsic	
	5	**T**	(1936) James Mirrlees	
	6	**W**	(1849) Alfred Bray Kempe	
	7	**T**	(1816) Johann Rudolf Wolf	
			(1906) William Feller	
			(1922) Vladimir Aleksandrovich Marchenko	
	8	**F**	(1760) Christian Kramp	
			(1904) Henri Paul Cartan	RM126
	9	**S**	(1845) George Howard Darwin	RM138
			(1931) Valentina Mikhailovna Borok	RM197
	10	**S**	(1856) Nikola Tesla	RM174
			(1862) Roger Cotes	
			(1868) Oliver Dimon Kellogg	
28	**11**	**M**	(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	**W**	(1527) John Dee	RM234
			(1741) Karl Friedrich Hindenburg	
	14	**T**	(1671) Jacques D'Allonville	
			(1793) George Green	RM078
	15	**F**	(1865) Wilhelm Wirtinger	
			(1898) Mary Taylor Slow	
			(1906) Adolph Andrej Pavlovich Yushkevich	
	16	**S**	(1678) Jakob Hermann	
			(1903) Irmgard Flugge-Lotz	
	17	**S**	(1831) Victor Mayer Amédeé Mannheim	
			(1837) Wilhelm Lexis	
			(1944) Krystyna Maria Trybulec Kuperberg	
29	**18**	**M**	(1013) Hermann von Reichenau	
			(1635) Robert Hooke	RM114
			(1853) Hendrik Antoon Lorentz	RM161
	19	**T**	(1768) Francois Joseph Servois	
	20	**W**	(1876) Otto Blumenthal	RM258
			(1947) Gerd Binnig	RM222
	21	**T**	(1620) Jean Picard	
			(1848) Emil Weyr	
			(1849) Robert Simpson Woodward	
			(1861) Herbert Ellsworth Slaught	
	22	**F**	(1784) Friedrich Wilhelm Bessel	RM198
	23	**S**	(1775) Étienne-Louis Malus	
			(1854) Ivan Slezynsky	
	24	**S**	(1851) Friedrich Hermann Schottky	
			(1871) Paul Epstein	
			(1923) Christine Mary Hamill	
30	**25**	**M**	(1808) Johann Benedict Listing	
	26	**T**	(1903) Kurt Mahler	
	27	**W**	(1667) Johann Bernoulli	RM093
			(1801) George Biddel Airy	
			(1848) Lorand Baron von Eötvös	RM210
			(1867) Derrick Norman Lehmer	RM215
			(1871) Ernst Friedrich Ferdinand Zermelo	RM090
	28	**T**	(1954) Gerd Faltings	RM222
	29	**F**	(1898) Isidor Isaac Rabi	
	30	**S**	(1889) Vladimir Kosma Zworkyn	
	31	**S**	(1704) Gabriel Cramer	RM186
			(1712) Johann Samuel Koenig	
			(1926) Hilary Putnam	

Putnam 2007, B1

Let f be a polynomial with positive integer coefficients. Prove that if n is a positive integer, then $f(n)$ divides $f(f(n) + 1)$ if and only if $n = 1$. [Editor's note: one must assume f is nonconstant.]

Why "π" is inferior to "e"

Everybody fights for their piece of the pie.

Why "e" is inferior to "π"

People mistakenly confuse Euler's Number (e) with Euler's Constant (γ). There is no confusion with the one and only π.

Why Astronomy is better than sex

You can experience multiple objects in a single session.

Mathematical theories constitute fictional universes, which are not fundamentally dissimilar from those, equally complex and articulated, of the great novels of the twentieth century, such as the Search for lost time or Ulysses.

Claudio Bartocci

Doing physics is much more enjoyable than just learning it. Maybe 'doing it' is the right way of learning, at least as far as I am concerned.

Gerd Binnig

There is nothing in a caterpillar that tells you it's going to be a butterfly.

Richard Buckminster Fuller

We have not begun to understand the relationship between combinatorics and conceptual mathematics.

Jean Alexandre Eugène Dieudonné

For mere human interest, you can't beat TV quizzes to investigate decisional math.

Rob Eastaway E Jeremy Wyndham

It is commonly believed that anyone who tabulates numbers is a statistician. This is like believing that anyone who owns a scalpel is a surgeon.

Robert Hooke

Axioms can be compared to the rules of a game, the value of which cannot be questioned. If you want to change these rules, you must necessarily play another game.

Mario Livio

If your new theorem can be stated with great simplicity, then there will exist a pathological exception.

Adrian Mathesis

All that was great in the past was ridiculed, condemned, combated, suppressed – only to emerge all the more powerfully, all the more triumphantly from the struggle.

Nikola Tesla

August

31	**1**	**M**	(1861) Ivar Otto Bendixson (1881) Otto Toeplitz (1955) Bernadette Perrin-Riou	
	2	**T**	(1856) Ferdinand Rudio (1902) Mina Spiegel Rees	
	3	**W**	(1914) Mark Kac	RM115
	4	**T**	(1805) Sir William Rowan Hamilton (1838) John Venn	RM079
	5	**F**	(1802) Niels Henrik Abel (1941) Alexander Keewatin Dewdney	RM055
	6	**S**	(1638) Nicolas Malebranche (1741) John Wilson	
	7	**S**	(1868) Ladislaus Josephowitsch Bortkiewitz	
32	**8**	**M**	(1902) Paul Adrien Maurice Dirac (1931) Sir Roger Penrose (1974) Manjul Bhargava	RM103 RM189
	9	**T**	(1537) Francesco Barozzi (Franciscus Barocius) (1940) Linda Goldway Keen	RM223
	10	**W**	(1602) Gilles Personne de Roberval (1901) Franco Dino Rasetti (1926) Carol Ruth Karp	 RM235
	11	**T**	(1730) Charles Bossut (1842) Enrico D'Ovidio	 RM259
	12	**F**	(1882) Jules Antoine Richard (1887) Erwin Rudolf Josef Alexander Schrödinger	 RM103
	13	**S**	(1625) Erasmus Bartholin (1819) George Gabriel Stokes (1861) Cesare Burali-Forti	 RM187
	14	**S**	(1530) Giovanni Battista Benedetti (1842) Jean Gaston Darboux (1865) Guido Castelnuovo (1866) Charles Gustave Nicolas de La Vallée-Poussin	
33	**15**	**M**	(1863) Aleksei Nikolaevich Krylov (1892) Louis Pierre Victor Duc de Broglie (1901) Piotr Sergeevich Novikov	 RM175
	16	**T**	(1773) Louis-Benjamin Francoeur (1821) Arthur Cayley	
	17	**W**	(1601) Pierre de Fermat	RM091
	18	**T**	(1685) Brook Taylor	
	19	**F**	(1646) John Flamsteed (1739) Georg Simon Klügel	
	20	**S**	(1710) Thomas Simpson (1863) Corrado Segre	RM247
	21	**S**	(1789) Augustin-Louis Cauchy	RM127
34	**22**	**M**	(1647) Denis Papin	
	23	**T**	(1683) Giovanni Poleni (1829) Moritz Benedikt Cantor (1842) Osborne Reynolds	
	24	**W**	(1561) Bartholomeo Pitiscus (1942) Karen Keskulla Uhlenbeck	 RM163
	25	**T**	(1561) Philip Van Lansberge (1844) Thomas Muir	 RM199
	26	**F**	(1728) Johann Heinrich Lambert (1875) Giuseppe Vitali (1965) Marcus Peter Francis du Sautoy	
	27	**S**	(1858) Giuseppe Peano	RM067
	28	**S**	(1796) Irénée Jules Bienaymé (1862) Roberto Marcolongo	 RM187
35	**29**	**M**	(1904) Leonard Roth	
	30	**T**	(1703) Giovanni Ludovico Calandrini (1856) Carle David Tolmé Runge (1906) Olga Taussky-Todd	RM186 RM139
	31	**W**	(1821) Hermann Ludwig Ferdinand von Helmholtz (1885) Herbert Westren Turnbull	RM211

Putnam 2007, B2

Suppose that f: $[0, 1] \to \mathbb{R}$ has a continuous derivative and that $\int_0^1 f(x)dx = 0$. Prove that for every $\alpha \in (0, 1)$,

$$\left|\int_0^\alpha f(x)dx\right| \le \frac{1}{8}\max_{0\le x\le 1}|f'(x)|.$$

Why "π" is inferior to "e"

$\ln(\pi^1)$ is a really nasty number, but $\ln(e^1)=1$.

Why "e" is inferior to "π"

You understand what e is even though you start learning it late when you're in pre-calculus. But with π, even after five or six years, it's still hard to know what it really is.

Why Astronomy is better than sex

The person you're with doesn't fantasize you're someone else.

When you discover things about numbers, it's very beautiful, when mathematicians are thinking about their problems, we're not thinking about their various applications, but rather are pursuing beauty. That's how pure mathematicians think.

Manjul Bhargava

I crave the liberty to conceal my name, not to suppress it. I have composed the letters of it written in Latin in this sentence — In Mathesi a sole fundes. [Anagram from Latinized name, Iohannes Flamsteedius].

John Flamsteed

Perhaps it was precisely such a cumbersome mathematical notation [Roman numerals] that did not make Romans excellent mathematicians. It could be argued that they were nevertheless excellent engineers. "Exactly!", Many mathematicians would reply.

Furio Honsell

Mathematical economics is old enough to be respectable, but not all economists respect it. It has powerful supporters and impressive testimonials, yet many capable economists deny that mathematics, except as a shorthand or expository device, can be applied to economic reasoning. There have even been rumors that mathematics is used in economics (and in other social sciences) either for the deliberate purpose of mystification or to confer dignity upon common places as French was once used in diplomatic communications.

James R. Newman

I can not help thinking that, in the case of mathematics, the arguments to believe in a possible ethereal, eternal existence, at least for the deeper mathematical concepts, are much stronger than those that lead to infer a discovery of the other cases of human activity.

Sir Roger Penrose

	1	**T**	(1647) Giovanni Ceva (1659) Joseph Saurin (1835) William Stanley Jevons	RM203
	2	**F**	(1878) Mauriche René Frechet (1923) René Thom	 RM080
	3	**S**	(1814) James Joseph Sylvester (1884) Solomon Lefschetz (1908) Lev Semenovich Pontryagin	RM104
	4	**S**	(1809) Luigi Federico Menabrea	RM150
36	**5**	**M**	(1667) Giovanni Girolamo Saccheri (1725) Jean-Étienne Montucla	RM128
	6	**T**	(1859) Boris Jakovlevich Bukreev (1863) Dimitri Aleksandrovich Grave	
	7	**W**	(1707) George Louis Leclerc Comte de Buffon (1948) Cheryl Elisabeth Praeger (1955) Efim Zelmanov	
	8	**T**	(1584) Gregorius Saint-Vincent (1588) Marin Mersenne	 RM092
	9	**F**	(1860) Frank Morley (1914) Marjorie Lee Browne	
	10	**S**	(1839) Charles Sanders Peirce	RM123
	11	**S**	(1623) Stefano degli Angeli (1798) Franz Ernst Neumann (1877) Sir James Hopwood Jeans	 RM224
37	**12**	**M**	(1891) Antoine André Louis Reynaud (1894) Dorothy Maud Wrinch (1900) Haskell Brooks Curry	 RM260 RM212
	13	**T**	(1873) Constantin Carathéodory (1885) Wilhelm Johann Eugen Blaschke	
	14	**W**	(1858) Henry Burchard Fine (1891) Ivan Matveevich Vinogradov	
	15	**T**	(973) Abu Arrayhan Muhammad Ibn Ahmad Al'Biruni (1886) Paul Pierre Levy	RM164
	16	**F**	(1494) Francisco Maurolico (1736) Johann Nikolaus Tetens	
	17	**S**	(1743) Marie Jean Antoine Nicolas de Caritat de Condorcet (1826) Georg Friedrich Bernhard Riemann	RM176 RM068
	18	**S**	(1752) Adrien-Marie Legendre	RM140
38	**19**	**M**	(1749) Jean-Baptiste Delambre	
	20	**T**	(1842) Alexander Wilhelm von Brill (1861) Frank Nelson Cole	
	21	**W**	(1899) Juliusz Pawel Schauder (1917) Phyllis Nicolson	
	22	**T**	(1765) Paolo Ruffini (1769) Louis Puissant (1803) Jaques Charles Francois Sturm	RM116
	23	**F**	(1768) William Wallace (1900) David Van Dantzig	
	24	**S**	(1501) Girolamo Cardano (1625) Johan de Witt (1801) Michail Vasilevich Ostrogradski (1862) Winifred Edgerton Merrill (1945) Ian Nicholas Stewart	RM064 RM188 RM056 RM236
	25	**S**	(1819) George Salmon (1888) Stefan Mazurkiewicz	
39	**26**	**M**	(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	**W**	(1698) Pierre Louis Moreau de Maupertuis (1761) Ferdinand François Desiré Budan de Boislaurent (1873) Julian Lowell Coolidge	RM152
	29	**T**	(1540) François Viète (1561) Adriaan Van Roomen (1812) Adolph Gopel	RM200 RM200
	30	**F**	(1775) Robert Adrain (1829) Joseph Wolstenholme (1883) Ernst Hellinger (1891) Otto Yulyevich Schmidt	 RM248

Rudi Mathematici

September

Putnam 2007, B3

Let $x_0 = 1$ and for $n \geq 0$, let $x_{n+1} = 3x_n + \lfloor x_n\sqrt{5} \rfloor$. In particular, $x_1 = 5$, $x_2 = 26$, $x_3 = 136$, $x_4 = 712$. Find a closed-form expression for x_{2007}. ($\lfloor a \rfloor$ means the largest integer $\leq a$.).

Why "π" is inferior to "e"

e is used in calculus while π is used in baby geometry.

Why "e" is inferior to "π"

e has an easy limit definition and infinite series. The limit definition of π and the infinite series are much harder.

Why Astronomy is better than sex

There is no shame when purchasing the equipment.

"It seems to me that you beg the question," Haydock said, "and I see one of those terrible exercises in probability looming where six men wear white hats and six other black hats, and you must mathematically derive the probability that the hats are mixed and in what proportion."
"If you start thinking about things like that, you go crazy. I assure you!".

Agatha Christie

Here is where the human mind is: on the one hand, subject to the laws of physics and the biological imperatives of evolution; on the other, as a small wheel in the gears of the enormous machine of human society. Our appreciation for music arose from the interplay of these two influences. That's why music has clear elements of mathematical patterns, but is generally best when it throws away the pattern book and draws on elements of human culture and emotions that are – at least for now – beyond scientific understanding.

Jack Cohen, Terry Pratchett, Ian Stewart

Mathematics can be considered as that which unites and interposes Man and Nature, the external and internal world, thought and perception.

Friedrich Wilhelm August Fröbel

The human activities that persist in keeping a dream alive, despite the overwhelming evidence to the contrary, can be counted on the fingers of one hand: religion, theoretical physics, being a fan of the Belgian football team, and ... mathematics.

Lieven Le Bruyn

(after Edna St. Vincent Millay)
...Euclid alone
Has looked on Beauty bare.
He turned away at once;
Far too polite to stare.

Adrian Riskin

Computers are smart machines, but they are useless without some good mathematics.

Ian Nicholas Stewart

	1	**S**	(1671) Luigi Guido Grandi	RM177
			(1898) Bela Kerekjarto'	
			(1912) Kathleen Timpson Ollerenshaw	
	2	**S**	(1825) John James Walker	
			(1908) Arthur Erdélyi	
40	**3**	**M**	(1944) Pierre René Deligne	
	4	**T**	(1759) Louis Francois Antoine Arbogast	
			(1797) Jerome Savary	
	5	**W**	(1732) Nevil Maskelyne	
			(1781) Bernhard Placidus Johann Nepomuk Bolzano	RM117
			(1861) Thomas Little Heath	
	6	**T**	(1552) Matteo Ricci	RM141
			(1831) Julius Wilhelm Richard Dedekind	RM081
			(1908) Sergei Lvovich Sobolev	
	7	**F**	(1885) Niels Bohr	RM063
	8	**S**	(1908) Hans Arnold Heilbronn	
	9	**S**	(1581) Claude Gaspard Bachet de Meziriac	RM201
			(1704) Johann Andrea von Segner	
			(1873) Karl Schwarzschild	RM153
			(1949) Fan Rong K Chung Graham	RM110
41	**10**	**M**	(1731) Henry Cavendish	RM273
			(1861) Heinrich Friedrich Karl Ludwig Burkhardt	
	11	**T**	(1675) Samuel Clarke	
			(1777) Barnabè Brisson	
			(1881) Lewis Fry Richardson	
			(1885) Alfred Haar	
			(1910) Cahit Arf	RM261
	12	**W**	(1860) Elmer Sperry	
	13	**T**	(1890) Georg Feigl	
			(1893) Kurt Werner Friedrich Reidemeister	
			(1932) John Griggs Thomson	
	14	**F**	(1687) Robert Simson	
			(1801) Joseph Antoine Ferdinand Plateau	
			(1868) Alessandro Padoa	
	15	**S**	(1608) Evangelista Torricelli	RM165
			(1735) Jesse Ramsden	
			(1776) Peter Barlow	
			(1931) Eléna Wexler-Kreindler	
	16	**S**	(1879) Philip Edward Bertrand Jourdain	
42	**17**	**M**	(1759) Jacob (II) Bernoulli	RM093
			(1888) Paul Isaac Bernays	
	18	**T**	(1945) Margaret Dusa Waddington Mcduff	RM249
	19	**W**	(1903) Jean Frédéric Auguste Delsarte	
			(1910) Subrahmanyan Chandrasekhar	RM153
	20	**T**	(1632) Sir Christopher Wren	RM105
			(1863) William Henry Young	
			(1865) Aleksandr Petrovich Kotelnikov	
	21	**F**	(1677) Nicolaus (I) Bernoulli	RM093
			(1823) Enrico Betti	RM150
			(1855) Giovan Battista Guccia	RM129
			(1893) William Leonard Ferrar	
			(1914) Martin Gardner	RM137
	22	**S**	(1587) Joachim Jungius	
			(1895) Rolf Herman Nevanlinna	
			(1907) Sarvadaman Chowla	
	23	**S**	(1865) Piers Bohl	
43	**24**	**M**	(1804) Wilhelm Eduard Weber	
			(1873) Edmund Taylor Whittaker	
	25	**T**	(1811) Évariste Galois	RM069
	26	**W**	(1849) Ferdinand Georg Frobenius	
			(1857) Charles Max Mason	
			(1911) Shiing-Shen Chern	
	27	**T**	(1678) Pierre Remond de Montmort	
			(1856) Ernest William Hobson	
	28	**F**	(1804) Pierre François Verhulst	
	29	**S**	(1925) Klaus Roth	
	30	**S**	(1906) Andrej Nikolaevich Tichonov	
			(1946) William Paul Thurston	RM237
44	**31**	**M**	(1711) Laura Maria Caterina Bassi	RM189
			(1815) Karl Theodor Wilhelm Weierstrass	RM057
			(1935) Ronald Lewis Graham	RM110

Rudi Mathematici

October

Putnam 2007, B4

Let n be a positive integer. Find the number of pairs P, Q of polynomials with real coefficients such that

$$(P(X))^2 + (Q(X))^2 = X^{2n} + 1$$

and deg $P >$ deg$Q$.

Why "π" is inferior to "e"

'*e*' is the most commonly picked vowel in Wheel of Fortune.

Why "e" is inferior to "π"

π is the bigger piece of pie.

Why Astronomy is better than sex

The telescope isn't going to make you pay child support for the next eighteen years.

The pursuit of science has often been compared to the scaling of mountains, high and not so high. But who amongst us can hope, even in imagination, to scale the Everest and reach its summit when the sky is blue and the air is still, and in the stillness of the air survey the entire Himalayan range in the dazzling white of the snow stretching to infinity? None of us can hope for a comparable vision of nature and of the universe around us. But there is nothing mean or lowly in standing in the valley below and awaiting the sun to rise over Kinchinjunga.

Subrahmanyan Chandrasekhar

I think that without a doubt no one has ever tasted the sweetness of mathematical proofs, even if only brushing it with the lips, without then trying with all his might to get drunk on it to the point of satiety, although rejected by the contrasting multitude of extreme difficulties, which go with mathematics, as from dense blows; just as innumerable crowds of bees wounding him in competition with the stings can hardly ward off a bear while eating, when he has just tasted the sweetness of honey hidden in a tree.

Bonaventura Cavalieri

I doubt that anyone will ever be able to adequately celebrate the properties of the number 7*, because they go beyond the expressible... So much august is the dignity that naturally belongs to the number* 7*, that it has a special and unique relationship that distinguishes it from all the other numbers: some of them generate without being generated, others are generated but do not generate, others do both, generate and are generated: the* 7 *alone does not belong to any of these categories. [in practice,* 7 *is the only number between* 1 *and* 10 *that has no divisors or multiples between* 1 *and* 10*]*

Filone Di Alessandria

Juggling is sometimes called the art of controlling patterns, controlling patterns in time and space.

Ronald Lewis Graham

	1	T	(1535) Giambattista della Porta	RM226
	2	W	(1815) George Boole	RM094
			(1826) Henry John Stephen Smith	
	3	T	(1867) Martin Wilhelm Kutta	
			(1878) Arthur Byron Coble	
			(1896) Raymond Louis Wilder	
			(1906) Carl Benjamin Boyer	
	4	F	(1744) Johann (III) Bernoulli	RM093
			(1865) Pierre Simon Girard	
	5	S	(1848) James Whitbread Lee Glaisher	
			(1930) John Frank Adams	
	6	S	(1906) Emma Markovna Trotskaia Lehmer	RM215
45	7	M	(1567) Clara Immerwahr	RM182
			(1660) Thomas Fantet de Lagny	
			(1799) Karl Heinrich Graffe	
			(1878) Lise Meitner	RM238
			(1898) Raphael Salem	
	8	T	(1656) Edmond Halley	RM190
			(1781) Giovanni Antonio Amedeo Plana	RM154
			(1846) Eugenio Bertini	
			(1848) Friedrich Ludwig Gottlob Frege	RM274
			(1854) Johannes Robert Rydberg	
			(1869) Felix Hausdorff	RM178
	9	W	(1847) Carlo Alberto Castigliano	RM202
			(1885) Theodor Franz Eduard Kaluza	
			(1885) Hermann Klaus Hugo Weyl	RM082
			(1906) Jaroslav Borisovich Lopatynsky	
			(1913) Hedwig Eva Maria Kiesler (Hedy Lamarr)	RM144
			(1922) Imre Lakatos	
	10	T	(1829) Helwin Bruno Christoffel	
	11	F	(1904) John Henry Constantine Whitehead	
	12	S	(1825) Michail Egorovich Vashchenko-Zakharchenko	
			(1842) John William Strutt Lord Rayleigh	
			(1927) Yutaka Taniyama	
	13	S	(1876) Ernest Julius Wilkzynsky	
			(1878) Max Wilhelm Dehn	
46	14	M	(1845) Ulisse Dini	
			(1919) Paulette Libermann	
			(1975) Martin Hairer	RM189
	15	T	(1688) Louis Bertrand Castel	
			(1793) Michel Chasles	
			(1794) Franz Adolph Taurinus	
	16	W	(1835) Eugenio Beltrami	RM262
	17	T	(1597) Henry Gellibrand	
			(1717) Jean-Baptiste Le Rond D'Alembert	RM166
			(1790) August Ferdinand Möbius	RM118
	18	F	(1872) Giovanni Enrico Eugenio Vacca	
			(1927) Jon Leslie Britton	
	19	S	(1894) Heinz Hopf	
			(1900) Michail Alekseevich Lavrentev	
			(1901) Nina Karlovna Bari	RM214
	20	S	(1889) Edwin Powell Hubble	
			(1924) Benoît Mandelbrot	
			(1963) William Timothy Gowers	
47	21	M	(1867) Dimitri Sintsov	
	22	T	(1803) Giusto Bellavitis	
			(1840) Émile Michel Hyacinthe Lemoine	
	23	W	(1616) John Wallis	RM070
			(1820) Issac Todhunter	
			(1917) Elizabeth Leonard Scott	RM106
	24	T	(1549) Duncan Maclaren Young Sommerville	
			(1909) Gerhard Gentzen	
	25	F	(1841) Fredrich Wilhelm Karl Ernst Schröder	
			(1873) Claude Louis Mathieu	
			(1943) Evelyn Merle Roden Nelson	
	26	S	(1894) Norbert Wiener	RM172
			(1946) Enrico Bombieri	
	27	S	(1867) Arthur Lee Dixon	
48	28	M	(1898) John Wishart	
	29	T	(1803) Christian Andreas Doppler	RM250
			(1849) Sir Horace Lamb	
			(1879) Nikolay Mitrofanovich Krylov	
	30	W	(1549) Sir Henry Savile	
			(1969) Matilde Marcolli	RM142

Rudi Mathematici

November

Putnam 2007, B5

Let k be a positive integer. Prove that there exist polynomials $P_0(n)$, $P_1(n)$, …, $P_{k-1}(n)$ (which may depend on k) such that for any integer n,

$$\left\lfloor \frac{n}{k} \right\rfloor^k = P_0(n) + P_1(n)\left\lfloor \frac{n}{k} \right\rfloor + \cdots + P_{k-1}(n)\left\lfloor \frac{n}{k} \right\rfloor^{k-1}$$

($\lfloor a \rfloor$ means the largest integer $\le a$.)

Why "π" is inferior to "e"

π inferiority statements are far more concise.

Why "e" is inferior to "π"

Explaining e inferiority requires a more convolute and precise sentence, allowing you to show your knowledge of unusual words.

Why Astronomy is better than sex

It's guaranteed to get at least a little something in view.

[A number] agrees to be taken from a greater number of itself, but to attempt to take it away from a smaller number of itself is ridiculous. Yet this is attempted by the algebrists who speak of a number smaller than nothing; or to multiply a negative number by a negative number and thus produce a positive number; or of a number that is imaginary … It is all jargon, from which common sense withdraws; but having adopted it once, as is the case with many other fictions, it finds its staunchest supporters among those who like to accept things on trust and hate the color of serious thought.

William Frend

Medicine makes people sick, mathematics makes them sad and theology makes them sinful.

Martin Luther

To state a theorem and then to show examples of it is literally to teach backwards.

E. Kim Nebeuts

There still remain three studies suitable for free man. Arithmetic is one of them.

Plato

[Wrote to La Condamine, after he delivered equator's measure] "Vous avez trouve par de long ennuis ce que Newton trouva sans sortir de chez lui" – With huge effort you have discovered what Newton calculated without leaving home.

Voltaire

Mathematics has beauties of its own – a symmetry and proportion in its results, a lack of superfluity, an exact adaptation of means to ends, which is exceedingly remarkable and to be found only in the works of the greatest beauty When this subject is properly... presented, the mental emotion should be that of enjoyment of beauty, not that of repulsion from the ugly and the unpleasant.

Jacob William Albert Young

	1	**T**	(1792) Nikolay Yvanovich Lobachevsky	RM083
			(1847) Christine Ladd-Franklin	
	2	**F**	(1831) Paul David Gustav du Bois-Reymond	
			(1869) Dimitri Fedorovich Egorov	RM214
			(1901) George Frederick James Temple	
	3	**S**	(1903) Sidney Goldstein	
			(1924) John Backus	
	4	**S**	(1795) Thomas Carlyle	
49	**5**	**M**	(1868) Arnold Johannes Wilhelm Sommerfeld	RM275
			(1901) Werner Karl Heisenberg	RM155
			(1907) Giuseppe Occhialini	RM122
	6	**T**	(1682) Giulio Carlo Fagnano dei Toschi	
	7	**W**	(1823) Leopold Kronecker	RM239
			(1830) Antonio Luigi Gaudenzio Giuseppe Cremona	RM150
			(1924) Mary Ellen Rudin	
	8	**T**	(1508) Regnier Gemma Frisius	
			(1865) Jaques Salomon Hadamard	RM263
			(1919) Julia Bowman Robinson	RM227
	9	**F**	(1883) Nikolai Nikolaievich Luzin	RM214
			(1906) Grace Brewster Murray Hopper	
			(1917) Sergei Vasilovich Fomin	
	10	**S**	(1804) Karl Gustav Jacob Jacobi	RM251
			(1815) Augusta Ada King Countess Of Lovelace	RM059
	11	**S**	(1882) Max Born	RM155
50	**12**	**M**	(1832) Peter Ludwig Mejdell Sylow	
			(1913) Emma Castelnuovo	RM191
	13	**T**	(1724) Franz Ulrich Theodosius Aepinus	
			(1887) George Pólya	RM131
	14	**W**	(1546) Tycho Brahe	
	15	**T**	(1802) János Bolyai	RM083
			(1923) Freeman John Dyson	
	16	**F**	(1804) Wiktor Yakovievich Bunyakowsky	
	17	**S**	(1706) Gabrielle Émilie Le Tonnelier de Breteuil du Châtelet	
			(1835) Felice Casorati	
			(1842) Marius Sophus Lie	
			(1900) Dame Mary Lucy Cartwright	
	18	**S**	(1856) Joseph John Thomson	RM161
			(1917) Roger Lyndon	
			(1942) Lenore Blum	
51	**19**	**M**	(1783) Charles Julien Brianchon	
			(1854) Marcel Louis Brillouin	
			(1887) Charles Galton Darwin	RM138
	20	**T**	(1494) Oronce Fine	
			(1648) Tommaso Ceva	RM203
			(1875) Francesco Paolo Cantelli	
	21	**W**	(1878) Jan Łukasiewicz	
			(1921) Edith Hirsch Luchins	
			(1932) John Robert Ringrose	
	22	**T**	(1824) Francesco Brioschi	RM150
			(1859) Otto Ludwig Hölder	
			(1877) Tommaso Boggio	
			(1887) Srinivasa Aiyangar Ramanujan	
	23	**F**	(1872) Georgii Yurii Pfeiffer	
	24	**S**	(1822) Charles Hermite	RM095
			(1868) Emmanuel Lasker	RM167
	25	**S**	(1642) Isaac Newton	RM071
			(1900) Antoni Zygmund	
52	**26**	**M**	(1780) Mary Fairfax Greig Somerville	
			(1791) Charles Babbage	RM059
			(1937) John Horton Conway	RM119
	27	**T**	(1571) Johannes Kepler	
			(1654) Jacob (Jacques) Bernoulli	RM093
	28	**W**	(1808) Louis Victoire Athanase Dupré	
			(1882) Arthur Stanley Eddington	RM179
			(1903) John von Neumann	RM107
	29	**T**	(1856) Thomas Jan Stieltjes	
	30	**F**	(1897) Stanislaw Saks	
	31	**S**	(1872) Volodymyr Levitsky	
			(1896) Carl Ludwig Siegel	
			(1945) Leonard Adleman	RM143
			(1952) Vaughan Frederick Randall Jones	

Rudi Mathematici

December

Putnam 2007, B6

For each positive integer n, let $f(n)$ be the number of ways to make $n!$ cents using an unordered collection of coins, each worth $k!$ cents for some k, $1 \le k \le n$. Prove that for some constant C, independent of n,

$$n^{\frac{n^2}{2}-Cn}e^{-n^2/4} \le f(n) \le n^{\frac{n^2}{2}+Cn}e^{-n^2/4}.$$

Why "π" is inferior to "e"

Applying a simple sine function to π gives zero.

Why "e" is inferior to "π"

$2 < e < 3 < \pi < 4$.

Why Astronomy is better than sex

You don't have to compliment the person that gave you a view.

The original source of the word "mathematics" is the Greek verb meaning "to understand" or "to learn". Mathematics is also essentially an art, but its primary purpose is to create rationally coherent thought structures that are therefore suitable for understanding or learning. The "medium" of mathematical art is therefore abstract symbolic thinking, while what is usually called art uses a sensory perceivable medium. The two types of art differ in this.

David Bohm

Since you are studying geometry and trigonometry, I'll give you a problem. A ship plows the ocean. You left Boston with a 200-ton load of wool on your way to Le Havre. The mainmast is broken, a hub is on the deck, the wind is blowing from the east-north-east, it's a quarter past three in the afternoon. We are in May. What is the age of the captain?

Gustave Flaubert

Geometry has two great treasures: one is the Pythagorean theorem; the other, the division of a segment according to the harmonic proportion. We can compare the former to a quantity of gold, and the latter to a precious jewel.

Johannes Kepler

I have not been able to discover the cause of those properties of gravity from phenomena, and I frame no hypotheses; for whatever is not deduced from the phenomena is to be called a hypothesis, and hypotheses, whether metaphysical or physical, whether of occult qualities or mechanical, have no place in experimental philosophy.

Isaac Newton

Mathematics is about proving the most obvious thing in the least obvious way.

George Polya

Mathematics is less related to accounting than it is to philosophy.

Leonard Adleman