$$x^3-6026x^2+12104151x-8104302126=0$$



SHOE — Jeff MacNelly

TODAY IN GEOMETRY WE'RE GOING TO DISCUSS VOLUMES.

THAT'S GOOD.

MAYBE I'LL FIND OUT HOW ALL THESE VOLUMES.

FIT INTO THIS LITTLE SPACE.



"The trouble with Mobius is he thinks there's only one side to every question."



FRANK & ERNEST® — Bob Thaves

THIS IS GOING TO TAKE FOREVER! CAN'T WE MAKE IT NON-EUCLIDIAN?

CREATION CONTROL DESK

THAVES 8-19



THAT'S $1.89

JUST FOR SIMPLICITY, I'LL GIVE YOU $7.14

AS AN ENGINEER, I FEEL A PROFESSIONAL RESPONSIBILITY TO MAKE THINGS EASY FOR PEOPLE.

...CARRY THE THREE



FRANK & ERNEST — BOB THAVES
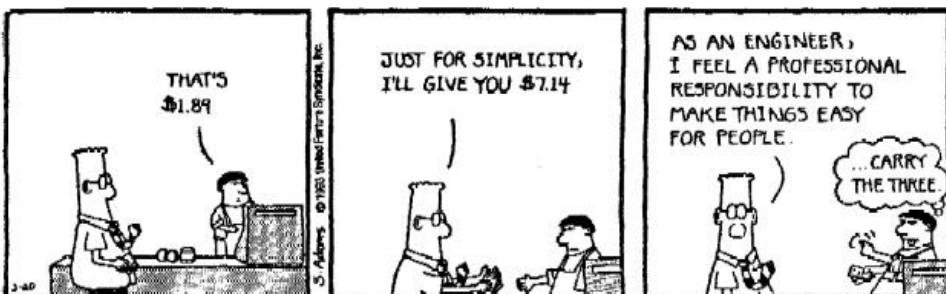
YOU MAY BE RIGHT, PYTHAGORAS, BUT EVERYBODY'S GOING TO LAUGH IF YOU CALL IT A "HYPOTENUSE!"

THAVES 5-15

# Gennaio 2001

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

## Putnam   1995-A6

Supponiamo $n$ persone scrivano i numeri 1, 2, 3 a caso in una colonna di una matrice $3xn$, con tutti gli ordinamenti equiprobabili e indipendenti tra di loro. Siano le somme delle righe *a, b, c* con (riarrangiando se necessario) $a \leq b \leq c$. Mostrate che, per qualche $n \geq 2001$ la probabilita` che si abbia *b=a+1* e *c=a+2* e` almeno *4* volte la probabilita` che si abbia *a=b=c*.

## Come mettere un elefante nel frigorifero

*Analisi Matematica*

1. Differenziare l`elefante, metterlo nel frigorifero e quindi integrarlo nel dominio del frigorifero

2. Ridefinire la metrica del frigorifero

3. Applicare il teorema di Banach-Tarski

## La peggiore del mese

> *Domanda:* Cos`e` giallo e normato?

> *Risposta*: Uno spazio di Bananach!

*"I know not what I appear to the world, but to myself I seem to have been only like a boy playing on the sea-shore, and diverting myself in now and then finding a smoother pebble or a prettier shell, whilest the great ocean of truth lay all undiscovered before me"*

Isaac NEWTON

*"The future science of governement should be called `la cybernetique`"*

Andre` Marie AMPERE

[Asked for a testimony to the effect that Emmy Noether was a great woman mathematician, he said:]
"*I can testify that she is a great mathematician, but that she is a woman, I cannot swear.*"

Lev Davidovich LANDAU

*"Physics is becoming too difficult for the physicists"*

David HILBERT

*"Father of Chemistry and Uncle of the Earl of Cork"*

Robert BOYLE [On his tombstone]

*"What I tell you three times is true."*

Charles Lutwidge DOGSON

*If you are afraid of something, measure it, and you will realize it is a mere triple .*

Renato CACCIOPPOLI

# *Febbraio 2001*

| 5 | 1 | G | (1900) John Charles BURKILL |
|---|---|---|---|
| | 2 | V | (1522) Lodovico FERRARI |
| | 3 | S | (1893) Gaston Maurice JULIA |
| | 4 | D | (1905) Eric Cristopher ZEEMAN |
| 6 | 5 | L | (1757) Jean Marie Constant DUHAMEL |
| | 6 | M | (1612) Antoine ARNAULD <br> (1695) Nicolaus (II) BERNOULLI |
| | 7 | M | (1877) Godfried Harold HARDY <br> (1883) Eric Temple BELL |
| | 8 | G | (1700) Daniel BERNOULLI <br> (1875) Francis Ysidro EDGEWORTH |
| | 9 | V | (1775) Farkas Wolfgang BOLYAI <br> (1907) Harod Scott MacDonald COXETER |
| | 10 | S | (1747) Aida YASUAKI |
| | 11 | D | (1800) William Henry Fox TALBOT <br> (1839) Josiah Willard GIBBS <br> (1915) Richard Wesley HAMMING |
| 7 | 12 | L | (1914) Hanna CAEMMERER NEUMANN |
| | 13 | M | (1805) Johann Peter Gustav Lejeune DIRICHLET |
| | 14 | M | (1468) Johann WERNER <br> (1849) Hermann HANKEL <br> (1896) Edward Artur MILNE |
| | 15 | G | (1564) Galileo GALILEI <br> (1861) Alfred North WHITEHEAD |
| | 16 | V | (1822) Francis GALTON <br> (1853) Georgorio RICCI-CURBASTRO <br> (1903) Beniamino SEGRE |
| | 17 | S | (1890) Sir Ronald Aymler FISHER <br> (1891) Adolf Abraham Halevi FRAENKEL |
| | 18 | D | (1404) Leon Battista ALBERTI |
| 8 | 19 | L | (1473) Nicolaus COPERNICUS |
| | 20 | M | (1844) Ludwig BOLTZMANN |
| | 21 | M | (1591) Girard DESARGUES <br> (1915) Evgenni Michailovitch LIFSHITZ |
| | 22 | G | (1903) Frank Plumpton RAMSEY |
| | 23 | V | (1583) Jean-Baptiste MORIN <br> (1951) Shigefumi MORI |
| | 24 | S | (1871) Felix BERNSTEIN |
| | 25 | D | (1827) Henry WATSON |
| 9 | 26 | L | (1786) Dominique Francois Jean ARAGO |
| | 27 | M | (1881) Luitzen Egbertus Jan BROUWER |
| | 28 | M | (1735) Alexandre Theophile VANDERMONDE <br> (1860) Herman HOLLERITH |

## Putnam 1995-B1

Per una partizione $p$ di {1, 2, 3, 4, 5, 6, 7, 8, 9}, sia $p(x)$ il numero degli elementi della parte contenente $x$. Provate che per ogni coppia di partizioni $p$ e $p$` ci sono due numeri distinti $x$ e $y$ in {1, 2, 3, 4, 5, 6, 7, 8, 9} per cui $p(x)= p(y)$ e $p$`$(x)= p$`$(y)$.

## Come mettere un elefante nel frigorifero

*Teoria dei Numeri*

1. Fattorizzare l`elefante, mettere i fattori nel frigorifero, moltiplicarli all`interno del frigorifero.

2. Usare l`induzione: se c`e` stato l`$n$-esimo pezzo, ci stara` l`$n+1$-esimo.

## La peggiore del mese

*Domanda*: Cos`e` grande, grigio e a coefficienti interi?

*Risposta*: Un`equazione elefantina.

*"Common sense is not really so common"*

Antoine ARNAULD

*Technical skill is mastery of complexity while creativity is mastery of simplicity*

Eric Cristopher ZEEMAN

*Reductio ad absurdum, which Euclid loved so much, is one of a mathematician`s finest weapons. It is a far finer gambit than any chess play: a chess player may offer the sacrifice of a pawn or even a piece, but a mathematician offers the game*

Godfried HARDY

*"it would be better for the true physics if there were no mathematicians on earth"*

Daniel BERNOULLI

*"Epur si muove"*

Galileo GALILEI

*"Connaitre, decouvrir, communiquer...telle est la destinee` d`un savant"*

Dominique ARAGO

*A mathematician will recognize Cauchy, Jacobi or Helmholtz after reading a few pages, just as a musician recognize, from the first few bars, Mozart, Beethoven or Schubert*

Ludwig BOLTZMANN

*Whenever you can, count*

Francis GALTON

*One of the principle objects of research in my department is to find the point of view from wich the subject appears in the greatest simplicity*

Willard GIBBS

# Marzo 2001

| 9 | 1 | G | (1611) John PELL |
|---|---|---|---|
| | 2 | V | (1836) Julius WEINGARTEN |
| | 3 | S | (1838) George William HILL<br>(1845) Georg CANTOR |
| | 4 | D | (1822) Jules Antoine LISSAJUS |
| 10 | 5 | L | (1512) Gerardus MERCATOR<br>(1759) Benjamin GOMPERTZ<br>(1817) Angelo GENOCCHI |
| | 6 | M | (1866) Ettore BORTOLOTTI |
| | 7 | M | (1792) William HERSCHEL<br>(1824) Delfino CODAZZI |
| | 8 | G | (1851) George CHRYSTAL |
| | 9 | V | (1818) Ferdinand JOACHIMSTHAL<br>(1900) Howard Hathaway AIKEN |
| | 10 | S | (1864) William Fogg OSGOOD |
| | 11 | D | (1811) Urbain Jean Joseph LE VERRIER<br>(1853) Salvatore PINCHERLE |
| 11 | 12 | L | (1685) George BERKELEY<br>(1824) Gustav Robert KIRKHHOFF<br>(1859) Ernesto CESARO |
| | 13 | M | (1861) Jules Joseph DRACH<br>(1957) Rudy D`ALEMBERT |
| | 14 | M | (1864) Jozef KURSCHAK<br>(1879) Albert EINSTEIN |
| | 15 | G | (1860) Walter Frank Raphael WELDON<br>(1868) Grace CHISOLM YOUNG |
| | 16 | V | (1750) Caroline HERSCHEL<br>(1789) Georg Simon OHM<br>(1846) Magnus Gosta MITTAG-LEFFLER |
| | 17 | S | (1876) Ernest Benjamin ESCLANGON<br>(1897) Charles FOX |
| | 18 | D | (1640) Philippe de LA HIRE<br>(1690) Christian GOLDBACH<br>(1796) Jacob STEINER |
| 12 | 19 | L | (1862) Adolf KNESER<br>(1910) Jacob WOLFOWITZ |
| | 20 | M | (1840) Franz MERTENS<br>(1884) Philip FRANCK<br>(1938) Sergi Petrovich NOVIKOV |
| | 21 | M | (1768) Jean Baptiste Joseph FOURIER<br>(1884) George David BIRKHOFF |
| | 22 | G | (1917) Irving KAPLANSKY |
| | 23 | V | (1754) Georg Freiherr von VEGA<br>(1882) Emmy Amalie NOETHER<br>(1897) John Lighton SYNGE |
| | 24 | S | (1809) Joseph LIOUVILLE<br>(1948) Sun-Yung (Alice) CHANG |
| | 25 | D | (1538) Christopher CLAUSIUS |
| 13 | 26 | L | (1848) Konstantin ADREEV<br>(1913) Paul ERDOS |
| | 27 | M | (1857) Karl PEARSON |
| | 28 | M | (1749) Pierre Simon de LAPLACE |
| | 29 | G | (1825) Francesco FAA` DI BRUNO<br>(1873) Tullio LEVI-CIVITA<br>(1896) Wilhelm ACKERMAN |
| | 30 | V | (1892) Stefan BANACH |
| | 31 | S | (1596) Rene` DESCARTES |

**Putnam   1995-B2**

Un ellisse di semiassi **a** e **b** rotola senza strisciare sulla curva $y = c * \sin\left(\dfrac{x}{a}\right)$. Qual`e` la relazione tra **a**, **b** e **c** se l`ellisse compie una rivoluzione in un periodo della curva data?

**Come mettere un elefante nel frigorifero**

*Algebra*

> Dimostrate che le parti di elefante si possono mettere nel frigorifero.

> Dimostrate che il frigorifero e` chiuso rispetto all`addizione.

> Generalizzate il frigorifero e definite una suriezione del frigorifero sull`elefante.

**La peggiore del mese**

> *Domanda*: Cos`e` formato da acini e commutativo?

> *Risposta*: Un gruppolo abeliano.

*"And what are these fluxions? The velocities of evanescent increments? They are neither finite quantities, nor quantities infinitely small, nor yet nothing. May we not call them ghosts of departed quantities?"*

George BERKELEY

*"Common sense is nothing more than a deposit of prejudices laid down in the mind before you reach eighteen."*

Albert EINSTEIN

*"We [he and Halmos] share a philosophy about linear algebra: we think basis-free, we write basis-free, but when the chips are down we close the office door and compute with matrices like fury."*

Irving KAPLANSKY

*"A Mathematician is a machine for turning coffee into theorems. "*

Paul ERDOS

*Perfect numbers (like perfect men) are very rare.*

Rene` DESCARTES

*A mathematician is a person who can find analogies between theorems; a better mathematician is one who can see analogies between proofs and the best mathematician can notice analogies between theories. One can imagine that the ultimate mathematician is one who can see analogies between analogies.*

Stefan BANACH

# *Aprile 2001*

| | | | |
|---|---|---|---|
| 13 | 1 | D | (1640) Georg MOHR<br>(1776) Marie-Sophie GERMAIN<br>(1895) Alexander Craig AITKEN |
| 14 | 2 | L | (1934) Paul Joseph COHEN |
| | 3 | M | (1835) John Howard Van AMRINGE<br>(1892) Hans RADEMACHER<br>(1900) Albert Edward INGHAM<br>(1909) Stanislaw Marcin ULAM<br>(1971) Alice RIDDLE |
| | 4 | M | (1809) Benjamin PEIRCE<br>(1842) Francois Edouard Anatole LUCAS<br>(1949) Shing-Tung YAU |
| | 5 | G | (1588) Thomas HOBBES<br>(1607) Honore` FABRI<br>(1622) Vincenzo VIVIANI<br>(1869) Sergi Alexeievich CHAPLYGIN |
| | 6 | V | |
| | 7 | S | (1768) Francais Joseph FRANCAIS |
| | 8 | D | (1903) Marshall Harvey STONE |
| 15 | 9 | L | (1791) George PEACOCK<br>(1816) Charles Eugene DELAUNAY<br>(1919) John Presper HECKERT |
| | 10 | M | (1857) Henry Ernest DUDENEY |
| | 11 | M | (1953) Andrew John WILES |
| | 12 | G | (1794) Germinal Pierre DANDELIN<br>(1852) Carl Louis Ferdinand Von LINDEMANN<br>(1903) Jan TINBERGEN |
| | 13 | V | (1728) Paolo FRISI<br>(1813) Duncan Farquharson GREGORY<br>(1879) Francesco SEVERI |
| | 14 | S | (1629) Christiaan HUYGENS |
| | 15 | D | (1452) Leonardo da VINCI<br>(1548) Pietro Antonio CATALDI<br>(1707) Leonhard EULER<br>(1809) Herman Gunther GRASSMANN |
| 16 | 16 | L | (1682) John HADLEY<br>(1823) Ferdinand Gotthold Max EISENSTEIN |
| | 17 | M | (1798) Etienne BOBILLIER<br>(1853) Arthur Moritz SCHONFLIES |
| | 18 | M | (1907) Lars Valerian AHLFORS<br>(1918) Hsien Chung WANG<br>(1949) Charles Luois FEFFERMAN |
| | 19 | G | (1880) Evgeny Evgenievich SLUTSKY<br>(1883) Richard VIN MISES<br>(1901) Kiyoshi OKA<br>(1905) Charles EHRESMANN |
| | 20 | V | (1839) Francesco SIACCI |
| | 21 | S | (1652) Michel ROLLE<br>(1774) Jean Baptiste BIOT<br>(1875) Teiji TAKAGI |
| | 22 | D | (1811) Otto Ludwig HESSE<br>(1887) Harald August BOHR |
| 17 | 23 | L | (1858) Max Karl Ernst Ludwig PLANCK |
| | 24 | M | (1863) Giovanni VAILATI |
| | 25 | M | (1849) Felix Christian KLEIN<br>(1900) Wolfgang PAULI<br>(1903) Andrei Nicolayevich KOLMOGOROV |
| | 26 | G | (1889) Ludwig Josef Johan WITTENGSTEIN |
| | 27 | V | (1755) Marc-Antoine PARSEVAL des Chenes |
| | 28 | S | (1906) Kurt GODEL |
| | 29 | D | (1854) Jules Henri POINCARE` |
| 18 | 30 | L | (1777) Johann Carl Friedrich GAUSS<br>(1916) Claude Elwood SHANNON |

## Putnam 1995-B3

Ad ogni intero positivo con $n^2$ cifre decimali, associamo il determinante della matrice ottenuta scrivendo le cifre per riga: ad esempio, per **n=2**, al numero **8617** associamo il determinante

$$\begin{bmatrix} 8 & 6 \\ 1 & 7 \end{bmatrix} = 50$$

. Trovate, come funzione di **n**, la somma di tutti i determinanti associati ai numeri di $n^2$ cifre significative.

## Come mettere un elefante nel frigorifero

*Topologia*

1. Dato l`elefante all`esterno del frigorifero, invertite topologicamente il frigorifero.

2. Usate come frigorifero una bottiglia di Klein

3. L`elefante e` compatto, quindi puo` essere messo in un insieme finito di frigoriferi

4. Dimostrate che la proprieta` di essere nel frigorifero e` ereditaria: quindi, mettete nel frigorifero la *madre* dell`elefante.

## La peggiore del mese

Quanto vale (x-a)*(x-b)*....*(x-z)?

Un consiglio: partite dal fondo a fare il calcolo...

---

*Knowing what is big and what is small is more important than being able to solve partial differential equations*

Stanislaw Marcin ULAM

*You treat world history as a mathematician does mathematics, in which nothing but laws and formulae exist, no reality, no good and evil, no time, no yesterday, no tomorrow, nothing but an eternal shallow, mathematical present.*

Otto Ludwig HESSE

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

Wolfgang PAULI

*Everyone knows what a curve is, until he has studied enough mathematics to become confused through the countless number of possible exceptions.*

*Felix KLEIN*

# Maggio 2001

| 18 | 1 | M | (1825) Johann Jacob BALMER |
|---|---|---|---|
| | 2 | M | (1860) D`Arcy Wentworth THOMPSON (1905) Kazimierz ZARANKIEWITZ |
| | 3 | G | (1842) Otto STOLZ (1860) Vito VOLTERRA |
| | 4 | V | (1845) William Kingdon CLIFFORD |
| | 5 | S | (1833) Lazarus Emmanuel FUCHS (1897) Francesco Giacomo TRICOMI |
| | 6 | D | (1872) Willem DE SITTER (1906) Andre` VEIL |
| 19 | 7 | L | (1926) Alexis Claude CLAIRAUT (1854) Giuseppe VERONESE (1881) Ebenezer CUNNINGHAM (1896) Pavel Sergieievich ALEXANDROV |
| | 8 | M | (1859) JOhan Ludwig William Valdemar JENSEN |
| | 9 | M | (1746) Gaspard MONGE (1876) Gilbert Ames BLISS |
| | 10 | G | (1788) Augustin Jean FRESNEL (1847) William Karl Joseph KILLING (1958) Piotr Rizierovich SILVERBRAHMS |
| | 11 | V | (1918) Richard Phillips FEYNMAN |
| | 12 | S | (1845) Pierre Rene`Jean Baptiste Henry BROCARD (1902) Frank YATES |
| | 13 | D | (1750) Lorenzo MASCHERONI |
| 20 | 14 | L | (1832) Rudolf Otto Sigismund LIPSCHITZ (1863) John Charles FIELDS |
| | 15 | M | (1939) Brian HARTLEY |
| | 16 | M | (1718) Maria Gaetana AGNESI (1821) Pafnuti Lvovi CHEBYSHEV |
| | 17 | G | |
| | 18 | V | (1850) Oliver HEAVISIDE (1892) Bertrand Arthur William RUSSELL |
| | 19 | S | (1919) Georgii Dimitirievich SUVOROV |
| | 20 | D | (1861) Henry Seely WHITE |
| 21 | 21 | L | (1471) Albrecht DURER (1792) Gustave Gaspard de CORIOLIS |
| | 22 | M | (1865) Alfred Cardew DIXON |
| | 23 | M | (1914) Lipa BERS |
| | 24 | G | |
| | 25 | V | (1838) Karl Mikailovich PETERSON |
| | 26 | S | (1667) Abraham DE MOIVRE (1896) Yuri Dimitrievich SOKOLOV |
| | 27 | D | (1862) John Edward CAMPBELL |
| 22 | 28 | L | (1676) Jacopo Francesco RICCATI (1710) Johann (II) BERNOULLI |
| | 29 | M | (1882) Harry BATEMAN |
| | 30 | M | (1814) Eugene Charles CATALAN |
| | 31 | G | (1926) John KEMENY |

## Putnam 1995-B5

Un gioco comincia con quattro mucchi di monete contenenti *3*, *4*, *5* e *6* monete; i due giocatori muovono uno per volta. La mossa consiste nel prelevare alternativamente da parte dei due giocatori, a scelta:

1. Una moneta da un mucchio, purche` sia lasciata almeno una moneta nel mucchio, oppure

2. Un intero mucchio di 2 o tre monete.

Chi prende l`ultima moneta vince.

Determinate una strategia vincente.

## Come mettere un elefante in un frigorifero

*Topologia Algebrica*

> Sostituite l`interno del frigorifero con la sua copertura universale, *R³*.

## La peggiore del mese

> Nell`inferno matematico, la birra e` venduta in bottiglie di Klein.

*"Nature is not embarrassed by difficulties of analysis."*

Augustin Jean FRESNEL

*"To those who do not knows mathematics it is difficult to get across a real feeling as to the deepest beauty of nature [...] If you want to appreciate nature, it is necessary to understand the language that she speaks in."*

Richard Phillips FEYNMAN

*"To isolate mathematics from the practical demands of the sciences is to invite the sterility of a cow shut away from the bulls. "*

Pafnuti Lvovi CHEBYSHEV

*"Mathematics is very much like poetry. What makes a great poem is htat there is a great amount of thought expressed in very few words. in this sense, formulas like* $e^{\pi i}+1=0$ *are poems.*

Lipa BERS

*This series is divergent, therefore we may be able to do something with it*

Oliver HEAVISIDE

*Men who are unhappy, like men who sleep badly, are always proud of the fact*

Bertrand RUSSELL

*A quantity that is increased or decreased by an infinitely small quantity is neither increased nor decreased.*

Johann BERNOULLI

# *Giugno 2001*

| 22 | 1 | V | (1796) Sadi Leonard Nicolas CARNOT<br>(1851) Edward Bailey ELLIOTT<br>(1899) Edward Charles TITCHMARSH |
|---|---|---|---|
| | 2 | S | (1895) Tibor RADO` |
| | 3 | D | (1659) David GREGORY |
| 23 | 4 | L | (1809) John Henry PRATT |
| | 5 | M | (1814) Pierre LAurent WANTZEL<br>(1819) John Couch ADAMS |
| | 6 | M | (1436) Johann Muller REGIOMONTANUS<br>(1857) Aleksandr Michailovitch LYAPUNOV<br>(1906) Max ZORN |
| | 7 | G | (1863) Edward Burr VAN VLECK |
| | 8 | V | (1625) Giovanni Domenico CASSINI<br>(1858) Charlotte Angas SCOTT<br>(1860) Alicia Boole STOTT |
| | 9 | S | (1885) John Edensor LITTLEWOOD |
| | 10 | D | (940) Mohammad ABU`L WAFA Al-Buzjani<br>(1887) Vladimir Ivanovich SMIRNOV |
| 24 | 11 | L | (1937) David Bryant MUMFORD |
| | 12 | M | (1888) Zygmunt JANYSZEWSKI |
| | 13 | M | (1831) James Clerk MAXWELL<br>(1876) William Sealey GOSSET (Student)<br>(1928) John Forbes NASH |
| | 14 | G | (1736) Charles Augustin de COULOMB<br>(1856) Andrei Andreyevich MARKOV<br>(1903) Alonzo CHURCH |
| | 15 | V | (1640) Bernard LAMY<br>(1894) Nikolai Gregorievich CHEBOTARYOV |
| | 16 | S | (1915) John Wilder TUKEY |
| | 17 | D | (1898) Maurits Cornelius ESCHER |
| 25 | 18 | L | (1858) Andrew Russell FORSYTH<br>(1884) Charles Ernest WEATHERBURN |
| | 19 | M | (1623) Blaise PASCAL<br>(1902) Wallace John ECKERT |
| | 20 | M | (1873) Alfred LOEWY |
| | 21 | G | (1781) Simeon Denis POISSON<br>(1828) Giuseppe BRUNO |
| | 22 | V | (1860) Mario PIERI<br>(1864) Hermann MINKOWSKY<br>(1910) Konrad ZUSE |
| | 23 | S | (1912) Alan Mathison TURING |
| | 24 | D | (1880) Oswald VEBLEN |
| 26 | 25 | L | (1908) William Van Orman QUINE |
| | 26 | M | (1824) William THOMPSON, Lord Kelvin<br>(1918) Yudell Leo LUKE |
| | 27 | M | (1806) Augustus DE MORGAN |
| | 28 | G | (1875) Henri Leon LEBESGUE |
| | 29 | V | (1888) Aleksandr Aleksandrovich FRIEDMANN |
| | 30 | S | (1791) Felix SAVART |

**Putnam 1996-A5**

Se $p$ e` un numero primo maggiore di 3 e $k = \left\lfloor \dfrac{2*p}{3} \right\rfloor$, provate che $\sum_{i=1}^{k} \dbinom{p}{i}$ (somma di coefficienti binomiali) e` divisibile per $p^2$.

**Come mettere un elefante nel frigorifero**

*Algebra Lineare*

1. Definite una base ortonormale per l`elefante e mettete la base nel frigorifero.

2. Mostrate che una parte dell`elefante puo` entrare nel frigorifero; se l`operatore e` lineare, tutte le parti possono entrare nel frigorifero

**La peggiore del mese**

*Messaggio di segreteria telefonica:* Il numero da voi composto e` immaginario. Ruotate il telefono di π/2 e riprovate

*"It can be of no practical use to know that $p$ is irrational, but if we can know, it surely would be intolerable not to know".*

Edward Charles TITCHMARSH

*"What I give form to in daylight is only one per cent of what I have seen in darkness"*

Maurits Cornelius ESCHER

*"The more I see of men, the better I like my dog"*

Blaise PASCAL

*"Science is a differential equation. Religion is a boundary condition"*

Alan Mathison TURING

*"In my opinion, a mathematician, in so far as he is a mathematician, need not preoccupy himself with philosophy -- an opinion, moreover, which has been expressed by many philosophers."*

Henri LEBESGUE

*Try a hard problem. You may not solve it, but you will prove something else.*

*Mathematics is a dangerous profession; an appreciable proportion of us goes mad.*

John LITTLEWOOD

*The mathematical education of the young physicist* [A. Einstein] *was not very solid, wich I am in good position to evaluate since he obtained it from me in Zurich some time ago.*

Hermann MINKOWSKI

# *Luglio 2001*

| 26 | 1 | D | (1643) Gottfried Wilhelm von LEIBNITZ<br>(1788) Jean Victor PONCELET |
|---|---|---|---|
| 27 | 2 | L | (1820) William John Racquorn RANKINE<br>(1852) William BURNSIDE |
| | 3 | M | (1807) Ernest Jean Philippe Fauque de JONQUIERE<br>(1897) Jesse DOUGLAS |
| | 4 | M | (1906) Daniel Edwin RUTHERFORD<br>(1917) Michail Samuilovich LIVSIC |
| | 5 | G | |
| | 6 | V | (1849) Alfred Bray KEMPE |
| | 7 | S | (1816) Johann Rudolf WOLF<br>(1906) William FELLER<br>(1922) Vladimir Aleksandrovich MARCHENKO |
| | 8 | D | (1760) Christian KRAMP |
| 28 | 9 | L | (1845) George Howard DARWIN |
| | 10 | M | (1862) Roger COTES<br>(1868) Oliver Dimon KELLOGG |
| | 11 | M | (1857) Sir Joseph LARMOR<br>(1890) Giacomo ALBANESE |
| | 12 | G | (1875) Ernest Sigismund FISCHER<br>(1895) Richard Buckminster FULLER |
| | 13 | V | (1527) John DEE<br>(1741) Karl Friedrich HINDENBURG |
| | 14 | S | |
| | 15 | D | (1865) Wilhelm WIRTINGER<br>(1906) Adolph Andrej Pavlovich YUSHKEVICH |
| 29 | 16 | L | (1678) Jakob HERMANN<br>(1903) Irmgard FLUGGE-LOTZ |
| | 17 | M | (1831) Victor Mayer Amedee` MANNHEIM<br>(1837) Wilhelm LEXIS |
| | 18 | M | (1013) Hermann von REICHENAU<br>(1635) Robert HOOKE<br>(1853) Hendrich Antoon LORENTZ |
| | 19 | G | (1768) Francois Joseph SERVOIS |
| | 20 | V | |
| | 21 | S | (1620) Jean PICARD<br>(1848) Emil WEYR<br>(1849) Robert Simpson WOODWARD |
| | 22 | D | (1784) Friedrich Wilhelm BESSEL |
| 30 | 23 | L | (1775) Etienne Louis MALUS<br>(1854) Ivan SLEZYNSKY |
| | 24 | M | (1851) Friedrich Herman SCHOTTKY<br>(1871) Paul EPSTEIN<br>(1923) Christine Mary HAMILL |
| | 25 | M | (1808) Johann Benedict LISTING |
| | 26 | G | (1903) Kurt MAHLER |
| | 27 | V | (1667) Johann BERNOULLI<br>(1801) George Biddel AIRY<br>(1848) Lorand Baron von EOTVOS<br>(1871) Ernst Friedrich Ferdinand ZERMELO |
| | 28 | S | (1954) Gerd FALTINGS |
| | 29 | D | |
| 31 | 30 | L | |
| | 31 | M | (1704) Gabriel CRAMER<br>(1712) Johann Samuel KOENIG |

## Putnam 1997-A2

I giocatori *1*, *2*,...,*n* sono seduti attorno ad un tavolo, ciascuno con una sola moneta davanti. Il primo da` una moneta al secondo, il secondo da` due monete al terzo, il terzo da` una moneta al quarto e avanti cosi`: vengono passate alternativamente uno o due monete al successivo; un giocatore che non e` in grado di giocare esce dal gioco e gli altri continuano. Trovate l`insieme infinito di valori di *n* per cui un giocatore termina con esattamente *n* monete.

## Come mettere un elefante nel frigorifero

*Geometria Affine*

> Esiste una trasformazione affine che mette l`elefante nel frigorifero.

## La peggiore del mese

> Il 50% dell`umanita` e` sotto la media .

*"When working on a problem, I never think about beauty; I think only of how to solve the problem. But when I have finished, if the solution is not beautiful, I know that it is wrong."*

Richard Buckminster FULLER

*" There is (gentle reader) nothing (the works of God only set apart) which so much beautifies and adorns the soul and mind of man as does knowledge of the good arts and sciences. ... Many ... arts there are which beautify the mind of man; but of all none do more garnish and beautify it than those arts which are called mathematical, unto the knowledge of which no man can attain, without perfect knowledge and instruction of the principles, grounds, and Elements of Geometry."*

John DEE

*"CEIIOSSOTTUU"*
Anagram to establish priority in the discovery of elasticity: "*Ut tensio, sic uis*"

Robert HOOKE

*Miracles are not to be multiplied beyond necessity*

*Taking mathematics from the beginning of the word to the time of Netown, what he has don is much the better half .*

Gottfried LEIBNITZ

[The infinitesimals] *neither have nor can have theory: in practise it is a dangerous instrument in the hands of beginners [...] anticipating, for my part, the judgement of posterity, I would predict that this method will be accused one day, and rightly, of having retarded the progress of the mathematical sciences.*

Francois SERVOIS

# *Agosto 2001*

| 31 | 1 | M | (1861) Ivar Otto BENDIXSON<br>(1881) Otto TOEPLITZ |
|----|----|----|----|
| | 2 | G | (1856) Ferdinand RUDIO<br>(1902) Mina Spiegel REES |
| | 3 | V | (1914) Mark KAC |
| | 4 | S | (1805) Sir William Rowan HAMILTON<br>(1838) John VENN |
| | 5 | D | (1802) Niels Henrik ABEL |
| 32 | 6 | L | (1638) Nicolas MALEBRANCHE<br>(1741) John WILSON |
| | 7 | M | (1868) Ladislaus Josephowitsch BORTKIEWITZ |
| | 8 | M | (1902) Paul Adrien Maurice DIRAC |
| | 9 | G | (1537) Francesco BAROZZI (Franciscus Barocius) |
| | 10 | V | (1602) Gilles Personne de ROBERVAL |
| | 11 | S | (1730) Charles BOSSUT<br>(1842) Enrico D`OVIDIO |
| | 12 | D | (1882) Jules Antoine RICHARD<br>(1887) Erwin Rudolf Josef Alexander SCHRODINGER |
| 33 | 13 | L | (1625) Erasmus BARTHOLIN<br>(1819) George Gabriel STOKES<br>(1861) Cesare BURALI-FORTI |
| | 14 | M | (1530) Giovanni Battista BENEDETTI<br>(1842) Jean Gaston DARBOUX<br>(1865) Guido CASTELNUOVO<br>(1866) Charles Gustave Nicolas de la VALLEE` POUSSIN |
| | 15 | M | (1863) Aleksei Nikolaevich KRYLOV<br>(1892) Louis Pierre Victor duc de BROGLIE<br>(1901) Petr Sergeevich NOVIKOV |
| | 16 | G | (12773) Louis Beniamin FRANCOEUR<br>(1821) Arthur CAYLEY |
| | 17 | V | (1601) Pierre de FERMAT |
| | 18 | S | (1685) Brook TAYLOR |
| | 19 | D | (1646) John FLAMSTEED<br>(1739) Georg Simon KLUGEL |
| 34 | 20 | L | (1710) Thomas SIMPSON<br>(1863) Corrado SEGRE<br>(1882) Waclav SIERPINSKI |
| | 21 | M | (1789) Augustin Louis CAUCHY |
| | 22 | M | (1647) Denis PAPIN |
| | 23 | G | (1683) Giovanni POLENI<br>(1829) Moritz Benedikt CANTOR |
| | 24 | V | (1561) Bartholomeo PITISCUS<br>(1942) Karen Keskulla UHLENBECK |
| | 25 | S | (1561) Philip van LANSBERGE<br>(1844) Thomas MUIR |
| | 26 | D | (1728) Johann Heinrich LAMBERT<br>(1875) Giuseppe VITALI |
| 35 | 27 | L | (1858) Giuseppe PEANO |
| | 28 | M | (1796) Irenee Jules BIENAYME` |
| | 29 | M | (1904) Leonard ROTH |
| | 30 | G | (1856) Carle David Tolme` RUNGE<br>(1906) Olga TAUSSKY-TODD |
| | 31 | V | (1821) Hermann Ludwig Ferdinand von HELMHOLTZ |

**Putnam 1997-A5**

Sia $N_n$ il numero delle n-uple *ordinate* degli interi positivi $a_1$, $a_2$,...$a_n$ per cui $\sum_{i=1}^{n} \frac{1}{a_i} = 1$. Determinate se $N_{10}$ e` pari o dispari.

**Come mettere un elefante nel frigorifero**

*Teoria degli Insiemi*

1. *Frigorifero = {Elefante}.*

2. L`elefante e il frigorifero hanno la stessa cardinalita`.

**La peggiore del mese**

> *Cartello in laboratorio*: Non guardate il fascio laser con l`occhio rimasto .

*"The whole form of mathematical thinking was created by Euler. It is only with the greatest of difficulty that one is able to follow the writings of any author preceding Euler, because it was not yet known how to let the formulas speak for themselves. This art Euler was the first to teach."*

Ferdinand RUDIO

*"This result is too beautiful to be false; it is more important to have beauty in one`s equations than to have them fit experiment. "*

Paul Adrien Maurice DIRAC

*"And perhaps, posterity will thank me for having shown it that the ancients did not know everything. "*

Pierre de FERMAT

"*Cubum autem in duos cubos, aut quadratoquadratum in duos quadratoquadratos, et generaliter nullam in infinitum ultra quadratum potestatem in duos ejusdem nominis fas est dividere: cujus rei demonstrationem mirabilem sane detexi. Hanc marginis exiguitas non caperet*"

Pierre de FERMAT

*As for everithing else, so for a mathematical theory: beauty can be perceived but not explained.*

Arthur CAYLEY

*"There are surely worse things than being wrong, and being dull and pedantic are surely among them."*

Mark KAC

*Whoever* [in the pursuit of science] *seeks after immediate practical utility may rest assured that he seeks in vain.*

Hermann von HELMHOLTZ

| 35 | 1 | S | (1659) Joseph SAURIN<br>(1835) William Stankey JEVONS |
|----|---|---|---|
| | 2 | D | (1878) Mauriche Rene` FRECHET<br>(1923) Rene` THOM |
| 36 | 3 | L | (1814) James Joseph SYLVESTER<br>(1884) Solomon LEFSCHETZ<br>(1908) Lev Semenovich PONTRYAGIN |
| | 4 | M | (1809) Luigi Federico MENABREA |
| | 5 | M | (1667) Giovanni Girolamo SACCHERI<br>(1725) Jean Etienne MONTUCLA |
| | 6 | G | (1859) Boris Jakovlevich BUKREEV<br>(1863) Dimitri Aleksandrovich GRAVE |
| | 7 | V | (1707) George Louis Leclerc comte de BUFFON<br>(1955) Efim ZELMANOV |
| | 8 | S | (1584) Gregorius SAINT-VINCENT<br>(1588) Marin MERSENNE |
| | 9 | D | (1860) Frank MORLEY |
| 37 | 10 | L | (1839) Charles Sanders PEIRCE |
| | 11 | M | (1623) Stefano degli ANGELI<br>(1877) sir James Hopwood JEANS |
| | 12 | M | (1891) Antoine Andre` Louis REYNAUD<br>(1900) Haskell Brooks CURRY |
| | 13 | G | (1873) Constantin CARATHEODORY<br>(1885) Wilhelm Johann Eugen BLASCHKE |
| | 14 | V | (1858) Henry Burchard FINE<br>(1891) Ivan Matveevich VINOGRADOV |
| | 15 | S | (973) Abu Arrayhan Muhammad ibn Ahmad AL`BIRUNI<br>(1886) Paul Pierre LEVY |
| | 16 | D | (1494) Francisco MAUROLICO<br>(1736) Johann Nikolaus TETENS |
| 38 | 17 | L | (1743) Marie Jean Antoine Nicolas de Caritat de CONDORCET<br>(1826) Georg Friedrich Bernhard RIEMANN |
| | 18 | M | (1752) Adrien Marie LEGENDRE |
| | 19 | M | (1749) Jean Baptiste DELAMBRE |
| | 20 | G | (1842) Alexander Wilhelm von BRILL<br>(1861) Frank Nelson COLE |
| | 21 | V | (1899) Juliusz Pawel SCHAUDER |
| | 22 | S | (1765) Paolo RUFFINI<br>(1769) Louis PUISSANT<br>(1803) Jaques Charles Francois STURM |
| | 23 | D | (1768) William WALLACE<br>(1900) David van DANTZIG |
| 39 | 24 | L | (1501) Girolamo CARDANO<br>(1625) Johan DE WITT<br>(1801) Michail Vasilevich OSTROGRADSKI |
| | 25 | M | (1819) George SALMON<br>(1888) Stefan MAZURKIEWICZ |
| | 26 | M | (1688) Willem Jakob `s GRAVESANDE<br>(1854) Percy Alexander MACMAHON<br>(1891) Hans REICHENBACH |
| | 27 | G | (1855) Paul Emile APPEL<br>(1876) Earle Raymond HEDRICK<br>(1919) James Hardy WILKINSON |
| | 28 | V | (1698) Pierre Louis Moreau de MAUPERTUIS<br>(1761) Ferdinand Francois Desire` Budan de BOISLAURENT<br>(1873) Julian Lowell COOLIDGE |
| | 29 | S | (1561) Adriaan van ROOMEN<br>(1812) Adolph GOPEL |
| | 30 | D | (1775) Robert ADRAIN<br>(1829) Joseph WOLSTENHOLME<br>(1883) Ernst HELLINGER |

**Putnam   1997-B3**

Per ogni intero positivo **n** si scriva la somma $\sum_{i=1}^{n} \frac{1}{i}$ sotto la forma $\frac{p_n}{q_n}$ con **p_n** e **q_n** interi positivi primi tra loro. Determinare tutti gli **n** per cui **q_n** non e` divisibile per 5.

**Come mettere un elefante nel frigorifero**

*Geometria*

> **Assioma**: Un elefante puo`essere messo nel frigorifero.

**La peggiore del mese**

> *Ricercato*
>
> Il gatto di Schrodinger
>
> (Vivo o morto)

*"The importance of the "New Mathematics" lies mainly in the fact that it has taught us the difference between the disc and the circle."*

*I believe that proving is not a natural activity for mathematicians*

Rene` THOM

*"If it`s just turning the crank it`s algebra, but if it`s got an idea in it, it`s topology."*

Solomon LEFSCHETZ

*"This branch of mathematics* [Probability] *is the only one, I believe, in which good writers frequently get results which are entirely erroneous."*

Charles Sanders PEIRCE

*"We may as well cut out the group theory. That is a subject that will never be of any use in physics."*

sir James Hopwood JEANS

*"If error is corrected whenever it is recognised, the path of error is the path of truth."*

Hans REICHENBACH

[Upon proving that the best betting strategy for "Gambler`s Ruin" was to bet all on the first trial.] *"It is true that a man who does this is a fool. I have only proved that a man who does anything else is an even bigger fool."*

Julian Lowell COOLIDGE

*The early study of Euclid made me a hater of geometry.*

James SYLVESTER

*If only I had the theorems! Then I should find the proofs easily enough...*

Bernhard RIEMANN

# Ottobre 2001

| 40 | 1 | L | (1671) Luigi Guido GRANDI<br>(1898) Bela KEREKJARTO` |
|---|---|---|---|
| | 2 | M | (1825) John James WALKER<br>(1908) Arthur ERDELYI |
| | 3 | M | (1944) Pierre Rene` DELIGNE |
| | 4 | G | (1759) Louis Francois Antoine ARBOGAST<br>(1797) Jerome SAVARY |
| | 5 | V | (1732) Nevil MASKELYNE<br>(1781) Bernhard Placidus Johann Nepomuk BOLZANO<br>(1861) Thomas Little HEATH |
| | 6 | S | (1552) Matteo RICCI<br>(1831) Julius Wilhelm Richard DEDEKIND<br>(1908) Sergei Lvovich SOBOLEV |
| | 7 | D | (1885) Niels BOHR |
| 41 | 8 | L | (1908) Hans Arnold HEILBRONN |
| | 9 | M | (1581) Claude Gaspard BACHET de Meziriac<br>(1704) Johann Andrea von SEGNER<br>(1873) Karl SCHWARTZSCHILD |
| | 10 | M | (1861) Heinrich Friedrich Karl Ludwig BURKHARDT |
| | 11 | G | (1675) Samuel CLARKE<br>(1777) Barnabe` BRISSON<br>(1885) Alfred HAAR<br>(1910) Cahit ARF |
| | 12 | V | (1492) Piero DELLA FRANCESCA |
| | 13 | S | (1890) Georg FEIGL<br>(1893) Kurt Werner Friedrich REIDEMEISTER<br>(1932) John Griggs THOMSON |
| | 14 | D | (1687) Robert SIMSON<br>(1801) Joseph Antoine Ferdinand PLATEAU<br>(1868) Alessandro PADOA |
| 42 | 15 | L | (1608) Evangelista TORRICELLI<br>(1735) Jesse RAMSDEN<br>(1776) Peter BARLOW |
| | 16 | M | (1879) Philip Edward Bertrand JOURDAIN |
| | 17 | M | (1759) Jacob (II) BERNOULLI<br>(1888) Paul Isaac BERNAYS |
| | 18 | G | (1741) John WILSON |
| | 19 | V | (1903) Jean Frederic Auguste DELSARTE<br>(1910) Subrahmanyan CHANDRASEKHAR |
| | 20 | S | (1632) Sir Cristopher WREN<br>(1863) William Henry YOUNG<br>(1865) Aleksandr Petrovich KOTELNIKOV |
| | 21 | D | (1677) Nicolaus (I) BERNOULLI<br>(1823) Enrico BETTI<br>(1855) Giovan Battista GUCCIA<br>(1893) William LEonard FERRAR |
| 43 | 22 | L | (1587) Joachim JUNGIUS<br>(1895) Rolf Herman NEVANLINNA<br>(1907) Sarvadaman CHOWLA |
| | 23 | M | (1865) Piers BOHL |
| | 24 | M | (1804) Wilhelm Eduard WEBER<br>(1873) Edmund Taylor WITTAKER |
| | 25 | G | (1811) Evariste GALOIS |
| | 26 | V | (1849) Ferdinand Georg FROBENIUS<br>(1857) Charles Max MASON<br>(1911) Shiing-Shen CHERN |
| | 27 | S | (1678) Pierre Remond de MONTMORT<br>(1856) Ernest William HOBSON |
| | 28 | D | (1804) Pierre Francois VERHULST |
| 44 | 29 | L | (1925) Klaus ROTH |
| | 30 | M | (1906) Andrej Nikolaevich TIKHONOV |
| | 31 | M | (1815) Karl Theodor Wilhelm WEIERSTRASS |

**Putnam 1997-B5**

Provare che, per $n \geq 2$ e` sempre:

$$\underset{n \text{ termini}}{2^{2^{\cdot^{\cdot^{\cdot^2}}}}} \equiv \underset{n-1 \text{ termini}}{2^{2^{\cdot^{\cdot^{\cdot^2}}}}} \pmod{n}$$

**Come mettere un elefante nel frigorifero**

*Analisi complessa*

> Mettete il frigorifero nell`origine e l`elefante all`esterno del cerchio unitario, quindi ottenete l`immagine per inversione.

**La peggiore del mese**

> *Che differenza c`e` tra un meccanico classico e un meccanico quantistico?*
>
> Il meccanico quantistico mette la macchina in officina senza aprire la porta

*An expert is a man who has made all the mistakes which can be made in a very narrow field*

*Anyone who is not shocked by quantum theory has not understood it*

*Prediction is very difficult, especially about the future .*

*How wonderful that we have met with a paradox. Now we have some hope of making progress .*

> Niels BOHR

*$2^{30}(2^{31}-1)$ is the greatest perfect number that will ever be discovered, for, as they are merely curious without being useful, it is not likely that any person will attempt to find a number beyond it*

> Peter BARLOW

*Unfortunately what is little recognized is that the most worthwhile scientific books are those in which the author clearly indicates what he does not know; for an author most hurts his readers by concealing difficulties.*

> Evariste GALOIS

*It is true that a mathematician who is not also something of a poet will never be a perfect mathematician.*

> Karl Theodor Wilhelm WEIERSTRASS

*Fourier is a mathematical poem .*

> William THOMSON (Lord KELVIN)

# Novembre 2001

| 44 | 1 | G | (1535) Giambattista DELLA PORTA |
|----|----|----|----|
| | 2 | V | (1815) George BOOLE |
| | 3 | S | (1867) Martin Wilhelm KUTTA <br> (1878) Arthur Byron COBLE |
| | 4 | D | (1744) Johann (III) BERNOULLI <br> (1865) Pierre Simon GIRARD |
| 45 | 5 | L | (1848) James Whitbread Lee GLAISHER <br> (1930) John Frank ADAMS |
| | 6 | M | (1781) Giovanni Antonio Amedeo PLANA |
| | 7 | M | (1660) Thomas Fantet DE LAGNY <br> (1799) Karl Heinrich GRAFFE <br> (1898) Raphael SALEM |
| | 8 | G | (1656) Edmond HALLEY <br> (1846) Eugenio BERTINI <br> (1848) Fredrich Ludwig Gottlob FREGE <br> (1854) Johannes Robert RYDBERG <br> (1869) Felix HAUSDORFF |
| | 9 | V | (1847) Carlo Alberto CASTIGLIANO <br> (1885) Theodor Franz Eduard KALUZA <br> (1885) Hermann Klaus Hugo WEYL <br> (1906) Jaroslav Borisovich LOPATYNSKY <br> (1922) Imre LAKATOS |
| | 10 | S | (1829) Helwin Bruno CHRISTOFFEL |
| | 11 | D | (1904) John Henry Constantine WHITEHEAD |
| 46 | 12 | L | (1825) Michail Egorovich VASHCHENKO-ZAKHARCHENKO <br> (1842) John William STRUTT Lord RAYLEIGH <br> (1927) Yutaka TANIYAMA |
| | 13 | M | (1876) Ernest Julius WILKZYNSKY <br> (1878) Max Wilhelm DEHN |
| | 14 | M | (1845) Ulisse DINI |
| | 15 | G | (1688) Louis Bertrand CASTEL <br> (1793) Michel CHASLES <br> (1794) Franz Adolph TAURINUS |
| | 16 | V | (1835) Eugenio BELTRAMI |
| | 17 | S | (1597) Henry GELLIBRAND <br> (1717) Jean Le Rond D`ALEMBERT <br> (1790) August Ferdinand MOBIUS |
| | 18 | D | (1872) Giovanni Enrico Eugenio VACCA <br> (1927) Jon Leslie BRITTON |
| 47 | 19 | L | (1894) Heinz HOPF <br> (1900) Michail Alekseevich LAVRENTEV <br> (1901) Nina Karlovna BARI |
| | 20 | M | (1889) Edwin Powell HUBBLE <br> (1924) Benoit MANDELBROT |
| | 21 | M | (1867) Dimitri SINTSOV |
| | 22 | G | (1803) Giusto BELLAVITIS <br> (1840) Emile Michel Hyacinte LEMOINE |
| | 23 | V | (1616) John WALLIS <br> (1820) Issac TODHUNTER |
| | 24 | S | (1549) Duncan MacLaren Young SOMERVILLE <br> (1909) Gerhard GENTZEN |
| | 25 | D | (1873) Claude Louis MATHIEU <br> (1841) Fredrich Wilhelm Karl Ernst SCHRODER |
| 48 | 26 | L | (1894) Norbert WIENER <br> (1946) Enrico BOMBIERI |
| | 27 | M | (1867) Arthur Lee DIXON |
| | 28 | M | (1898) John WISHART |
| | 29 | G | (1803) Christian Andreas DOPPLER <br> (1849) Horace LAMB <br> (1879) Nikolay Mitrofanovich KRYLOV |
| | 30 | V | (1549) Sir Henry SAVILE |

**Putnam 1998-A1**

Un cono circolare retto ha raggio di base 2 e altezza 3. Un cubo e` inscritto al suo interno in modo tale che una faccia del cubo appoggia sulla base del cono. Qual`e` il lato del cubo?

**Come mettere un elefante nel frigorifero**

*Analisi numerica*

> Mettete nel frigorifero la proboscide e definite il resto dell`elefante come errore di arrotondamento.

**La peggiore del mese**

> *La Legge di Hofstadter*

> Ci vuole sempre piu` di quanto pensiate, anche considerando la Legge di Hofstadter

*"Of the many forms of false culture, a premature converse with abstractions is perhaps the most likely to prove fatal to the growth of a masculine vigour of intellect."*

George BOOLE

*"A scientist can hardly meet with anything more undesirable than to have the foundations give way just as the work is finished. I was put in this position by a letter from Mr. Bertrand Russell when the work was nearly through the press."*

Fredrich Ludwig Gottlob FREGE

*"Logic is the hygiene the mathematician practices to keep his ideas healthy and strong."*

Hermann Klaus Hugo WEYL

*" The British Mathematical Colloquium consists of three days of mathematics with no dogs and no wives"*

John Henry Constantine WHITEHEAD

*" The modern physicist is a quantum theorist on Monday, Wednesday, and Friday and a student of gravitational relativity theory on Tuesday, Thursday, and Saturday. On Sunday he is neither, but is praying to his God that someone, preferably himself, will find the reconciliation between the two views. "*

Benoit MANDELBROT

*Algebra is generous: she often gives more than is asked for.*

Jean D`ALEMBERT

*The history of astronomy is a history of receding horizons.*

Edwin HUBBLE

# Dicembre 2001

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

## Putnam   1998-B2

dato un punto **(a,b)** per cui e` **0<b<a**, determinare il perimetro minimo del triangolo con un vertice in **(a,b)**, un secondo vertice sull`asse **x** e il terzo vertice sulla linea **y-x**, assumendo come premessa che esista questo valore.

## Come mettere un elefante nel frigorifero

*Statistica*

Tagliate la coda dell`elefante, mettetela nel frigorifero e consideratela un campione rappresentativo dell`intero elefante.

## La peggiore del mese

-Papa`, puoi farmi il compito di matematica?

*-No figliolo, non sarebbe giusto*

-Beh, dopo lo riguardiamo assieme...

*" Die ganze Zahl schuf der liebe Gott, alles Übrige ist Menschenwerk."*

Leopold KRONECKER

*"The shortest path between two truths in the real domain passes through the complex domain."*

Jaques Salomon HADAMARD

*"Now it is quite clear to me that there are no solid spheres in the heavens, and those that have been devised by authors to save the appearances, exist only in their imagination, for the purpose of permitting the mind to conceive the motion which the heavenly bodies trace in their courses."*

Tycho BRAHE

*"Mathematical discoveries, like springtime violets in the woods, have their season which no human can hasten or retard."*

Janos BOLYAI

*" I believe there are 15 747 724 136 275 002 577 605 653 961 181 555 468 044 717 914 527 116 709 366 231 425 076 185 631 031 296 296 protons in the universe and the same number of electrons."*

Arthur EDDINGTON

*"The Analytical Engine weaves algebraic patterns, just as the Jacquard loom weaves flowers and leaves"*

Augusta Ada KING Countess of LOVELACE

*"An expert is someone who knows some of the worst mistakes that can be made in his subject, and how to avoid them"*

Werner Karl HEISENBERG