ALU SCHOOL OF MATHEMATICS

ALU MATHS NEWS

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We are delighted to bring to you this issue of ALU Mathematics News, a monthly newsletter dedicated to the emerging field of Mathematics. This is the first visible —output from the Department of Mathematics, Alagappa University. We are committed to make ALU Mathematics News a continuing and effective vehicle to promote communication, education and networking, as well as stimulate sharing of research, innovations and technological developments in the field. However, we would appreciate your feedback regarding how we could improve this publication and enhance its value to the community. We are keen that this publication eventually grows beyond being a mere —news letter to become an invaluable information resource for the entire Mathematics community, and look forward to your inputs to assist us in this endeavor.

Dr. N. Anbazhagan

FIELDS MEDAL

Fields Medal is highest honored award for Mathematics and its a prize awarded to two,three or four mathematicians under 40 years of age at the International Congress of the International Mathematical Union(IMU), a meeting that takes place every four years.

FIELDS MEDAL

TERENCE TAO

Year	Name		Affiliation at the time of the award
2014	Artur	Avila Cordeiro de Melo	CNRS - Institut de Mathématiques de Jussieu-Paris Rive Gauche
2014	Manjul	Bhargava	Princeton University,
2014	Martin	Hairer	University of Warwick
2014	Maryam	Mirzakhani	Stanford University
2010	Ngô Bao	Châu	Université Paris-Sud 11 and Institute for Advanced Study
2010	Elon	Lindenstrauss	Hebrew University of Jerusalem
2010	Stanislav K.	Smirnov	University of Geneva
2010	Cédric	Villani	École Normale Supérieure de Lyon and Institut Henri Poincaré
2006	Andrei	Okounkov	Princeton University
2006	Teren	Tao	University of

	ce		California
2006	Wendelin	Werner	Université Paris-Sud
2002	Laurent	Lafforgue	Institut des Hautes Études Scientifiques
2002	Vladimir	Voevodsky	Institute for Advanced Study
1998	Richard E.	Borcherds	University of Cambridge
1998	W. Timothy	Gowers	University of Cambridge
1998	Maxim	Kontsevich	Institut des Hautes Études Scientifiques
1998	Curtis T.	McMullen	Harvard University
1994	Jean	Bourgain	Institut des Hautes Études Scientifiques
1994	Pierre-Louis	Lions	Université de Paris-Dauphine, CEREMADE
1994	Jean-Christ	Yoccoz	Université de Paris-Sud (Orsay)

| Year	First	Last	Institution
	ophe		
1994	Efim I.	Zelmanov	University of Wisconsin (now at the University of Chicago)
1990	Vladimir	Drinfeld	Steklov Mathematical Institute
1990	Vaughan F.R.	Jones	Columbia University
1990	Shigefumi	Mori	Harvard University
1990	Edward	Witten	Princeton University
1986	Simon K	Donaldson	University of Oxford
1986	Gerd	Faltings	Princeton University
1986	Michael H.	Freedman	University of California
1982	Alain	Connes	Institut des Hautes Études Scientifiques
1982	William P.	Thurston	Princeton University
1982	Shing-Tung	Yau	Institute for Advanced Study
1978	Pierre René	Deligne	Institut des Hautes Études Scientifiques
1978	Charles Louis	Fefferman	Princeton University
1978	Gregori Aleksandrovitch	Margulis	University of Moscow
1978	Daniel G.	Quillen	Massachusetts Institute of Technology (MIT)
1974	Enrico	E Bombieri	University of Pisa
1974	David Bryant	Mumford	Harvard University
1970	Alan	Baker	University of Cambridge
1970	Heisuke	Hironaka	Harvard University
1970	Serge P.	Novikov	Belorusskii University
1970	John Griggs	Thompson	University of Chicago
1966	Michael Francis	Atiyah	University of Oxford
1966	Paul Joseph	Cohen	Stanford University
1966	Alexander	Grothendieck	University of Paris
1966	Stephen	Smale	University of California
1962	Lars	Hörmander	Stockholm University
1962	John Willard	Milnor	Princeton University
1958	Klaus Friedrich	Roth	London University
1958	René	Thom	University of Strasbourg
1954	Kunihiko	Kodaira	Princeton University
1954	Jean-Pierre	Serre	Collège de France
1950	Laurent	Schwartz	Nancy University
1950	Atle	Selberg	Institute for Advanced Study

1936	Lars Valerian	Ahlfors	Harvard University

1936	Jesse	Douglas	Massachusetts Institute of Technology (MIT)

TOP 10 INDIAN MATHEMATICIANS

Since ancient times, India has a rich history of producing great mathematicians and astronomers. Some famous and popular mathematicians include Brahmagupta, Varahamithira, Aryabhata, Bandhayana who were still praised today for their contribution toward the subject. With the advancement in education, the subject of mathematics has become more specialized and conceptual. World has seen the emergence of several Indian mathematics in last two century. We have listed below the contribution of top 10 Great Indian Mathematicians from modern time.

1.Srinivasa Ramanujan
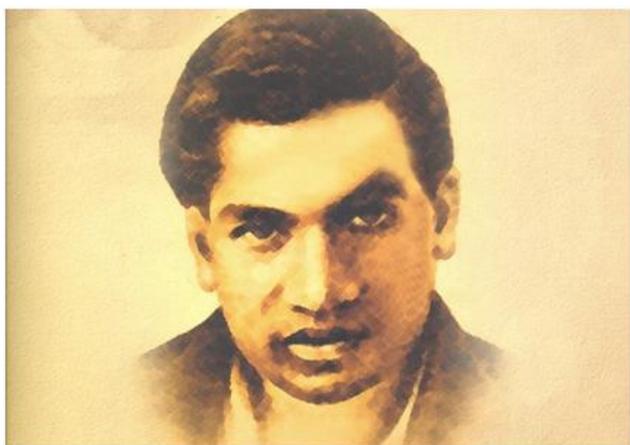
Srinivasa Ramanujan was a mathematic genius who won several accolades in field of mathematics. His was known for his contribution in analytical theory of numbers, elliptic functions, continued fractions and infinite series. On his birthday on 22nd December, Tamil Nadu government celebrates state IT Day.
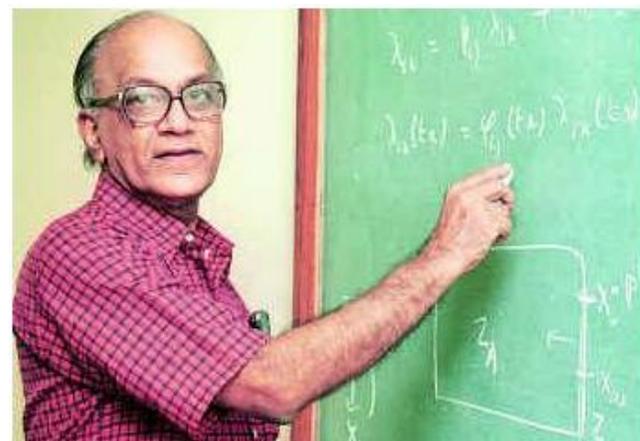
2. Satyendra Nath Bose

Born in Kolkata in 1884, Satyendra Nath Bose is one of the most prominent Indian mathematicians. In year 1924, Bose sent his mathematical finds to Albert Einstein which lead to the discovery of Bose-Einstein condensate phenomenon. In 1954, Government of India awarded Padma Vibhushan for his contribution in mathematics.

3. C.S.Seshadri

Seshadri completed his graduation from Madras University and PhD from Bombay University in year 1958. He is known for his contribution in algebraic geometry. He invented seshadri constant and Narasimhan-Seshadri theorem. Government of India awarded him with

Padma Bhushan in 2009 to recognize his contribution in field of Mathematics.

4. P.C.Mahalanobis
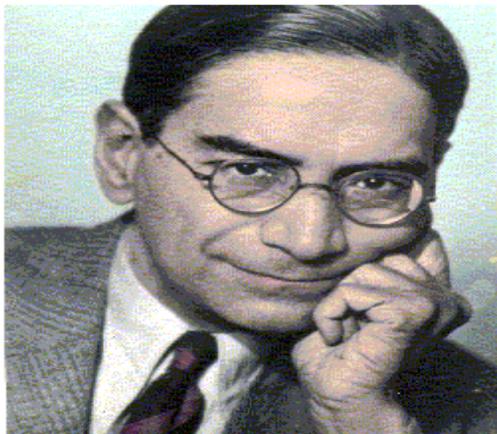
P.C.Mahalanobis was a renowned Indian statistician who completed his education in physics and mathematics from University of Cambridge. He is known for discovering D2-statistics which is used for divergence based grouping. Government of India felicitated him with Padma Vibhushan in 1968 for his contribution in statistics.

5. C.R.Rao
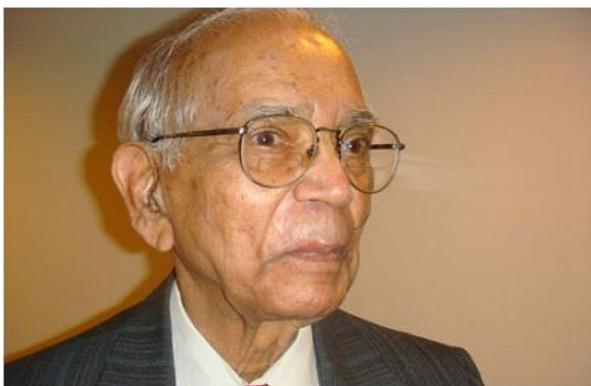
C.R.Rao is one of the prominent American statisticians from Indian Origin. Born in 1920 in Karnataka, Rao completed his masters in mathematics from Andhra University. He is known for his contribution in discovering Cramer-Rao bound and the Rao-Blackwell theorem. Government of India felicitated him with

Padma Vibhushan in 2001 for his contribution in mathematics.

6. Harish Chandra
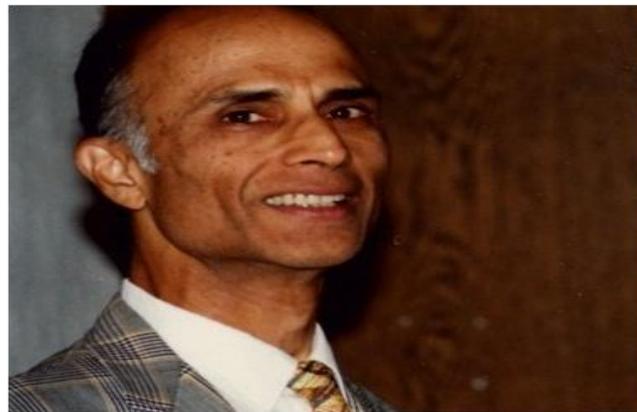
Harish Chandra was a famous American physicist and mathematician from Indian origin. He pursued his masters under the supervision of Homi Bhabha. He was worked on several mathematical theories with renowned mathematicians from all across the world. In 1954 he received Cole Prize of the American Mathematical Society.

7. Narendra Karmarkar

In year 1957, Narendra Karmarkar was born in Gwalior. He has completed his graduation in electrical engineering from IIT Bombay and went to USA for post graduation and Ph.D. Karmarkar was famous for his contribution in inventing polynomial algorithm for linear programming. In year 2000, he received

Paris Kanellakis Award for his work in the field of Mathematics.

8. D.R.Kaprekar

D.R.Kapreka was yet another great mathematician who was born on in Mumbai in Year 1905. Kapreka pursued his graduation from University of Mumbai and started working as a teacher. Kapreka contributed lot towards various topics including recurring decimals, magic squares and integers with special properties. The kaprekar number goes to him.

9. C.P.Ramanujam

C.P.Ramanujam was one of the great mathematicians born in Chennai in year 1938. During his doctoral examination at Tata Institute of Fundamental Research in 1957, Ramanujam impressed all his teachers and fellow students with his

MATHS PUZZLES

mathematical problem solving capability. He has contributed a lot toward the mathematical field especially in field of algebra and geometry. In 1973, Ramanujam was elected as a fellow of the Indian Academy of Sciences.

10. Shakuntala Devi

Shakuntala Devi was one of the most popular mathematics geniuses of Indian origin. She was regarded as 'Human Computer' because of her inborn capability to solve most complex calculation with using any calculator. Due to her outstanding mathematical problem solving capability, she won the first place at Guinness Book of World Records in 1995. She has even defeated UNIUAC, the fastest computer's time of 62 second to solve the 23rd root of a 201-digit number.

Mathematicians are born, not made.

-Henri Poincare

1) Can you find four consecutive prime numbers that add up to 220?
   Answer
   47+53+59+61=220.

2) Find three positive whole numbers that have the same answer added together or when multiplied together?

   Answer
   1,2&3.
   1×2×3=6 and 1+2+3=6.

3) When Deepak was six years old he hammered a nail into his favourite tree to mark his height. Five years later at age eleven, Deepak returned to see how much higher the nail was. If the tree grew by ten inches each year, how much higher would the nail be?
   Answer
   The nail would be at the same height since trees grow at their tops.

4) In a new Engineering Hostels containing 100 rooms. Ramesh was hired to paint the numbers 1 to 100 on the doors. How many times will Ramesh have to paint the number eight?
   Answer
   20 times.
   8,18,28,38,48,58,68,78,80,81,82,83,84,85,86,87,88,89,98.

5) 5+3+2=151022
   9+2+4=183652

8+6+3=482466
5+4+5=202541
Then 7+2+5=?
Answer
143547

6) Replace the '?' by any mathematical symbol to make the expression equal to 111.
   18?12?2?3=111.
   Answer
   18×12÷2+3=111.

7) Today my car meter reads as 72927 kms. I notes that this is a palindrome. How many minimum kms I need to travel so my car meter find another palindrome.

   Answer
   110 kms.
   72927+110=73037, a palindrome.

8) Can you arrange for nines to make it equal to 100.
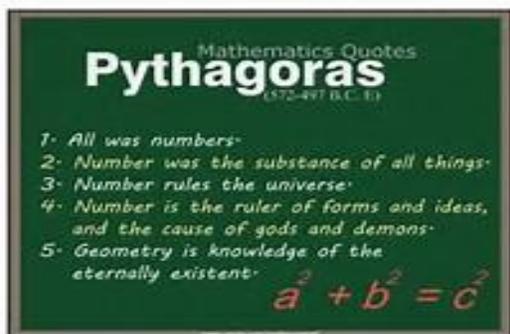   Hint: use two mathematical symbols.
   Answer
   99+(9/9) = 100.

9) What is the value of 1/2 of 2/3 of 3/4 of 4/5 of 5/6 of 6/7 of 7/8 of 8/9 of 9/10 of 1000?
   Answer
   100. Look hard? Just work it backwards. You found it easy.

NUMBER PUZZLES

What 5 digit number(where the digits are all different and none of them is zero) multiplied by 4 gives an answer where the digits are those of the original number but in reverse order?

Answer
21978.
ABCDE*4 = EDCBA
Let's start at the ends.

- A can only be 1 or 2, because A*4<10. E*4 divided by 10 must leave a remainder of A. It can't leave a remainder of 1, so A=2
  2BCDE*4 = EDCB2
- If E*4 divided by 10 leaves a remainder of 2, then E has to be 3 or 8. The E on the right-hand side must be 8 or 9. Putting those 2 constraints together, E=8
  2BCD8*4 = 8DCB2
- B*4 must be < 10. If it was more, then the first digit of the right-hand side wouldn't be 8. B can't be 2 because

we've used that already. So B=1
21CD8*4 = 8DC12

- To get the 1 that's on the right-hand side, D*4+3 when divided by 10 must leave a remainder of 1. D can't be 2 (2 has been used already) so D=7
  21C78*4 = 87C12
- 4*C+3 when divided by 10 must give the answer 3 and a remainder C, so C=9
  21978*4 = 87912 .

This sum uses all the digits from 0 to 9

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      28*
  +   **4
      _____
      ****
      _____
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Answer
289+764 = 1053.

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