The Year of Maths

The year 2012 is the 'national year of mathematics' for the country to pay a tribute to the mathematical genius, Srinivasa Ramanujan. Likewise, his birthday 22nd December, 2012 will be celebrated as National Mathematics Day.
So if you have missed out on this special event you can still make up for it in these last two months...

"Mathematics, like the crest of a peacock, like the gem on the head of a snake, is at the head of all knowledge..."

The year 2012 marks the 125th birth anniversary of the great Indian mathematician, Srinivasa Ramanujan. As a tribute to the great mathematician, our government has decided to declare his birthday, that is December 22, as the National Mathematics Day and the year 2012 as the National Mathematical Year. India has a long and glorious tradition of mathematics.

In the second half of the millennium before Christ, India made great strides in mathematics. In the early centuries of the Common Era, India was in fact in the lead in mathematical developments. Aryabhata in the fifth century, followed by Brahmagupta in the next are reckoned to be among the all-time great mathematicians. And we taught the world to think of zero as a number and the modern way of representing all numbers with 10 symbols. This arguably is the single most important mathematical development in all human history. Indian mathematics remained in the forefront for almost a thousand years following Aryabhata, Bhaskaracharya, Mahavira and the recent Shakuntala Devi.
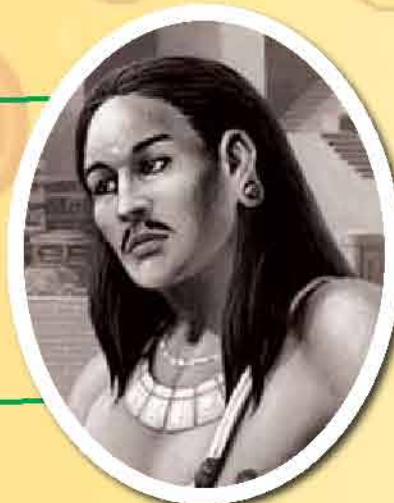
AN ODE TO INDIAN MATHEMATICAL GENIUSES

► SRINIVASA RAMANUJAN was one of India's greatest mathematical geniuses. He made substantial contributions to the analytical theory of numbers and worked on elliptic functions, continued fractions, and infinite series. His most famous work was on the number p (n) of partitions of an integer n into summands. Ramanujan showed that any big number can be written as sum of not more than four prime numbers. He showed that how to divide the number into two or more squares or cubes.
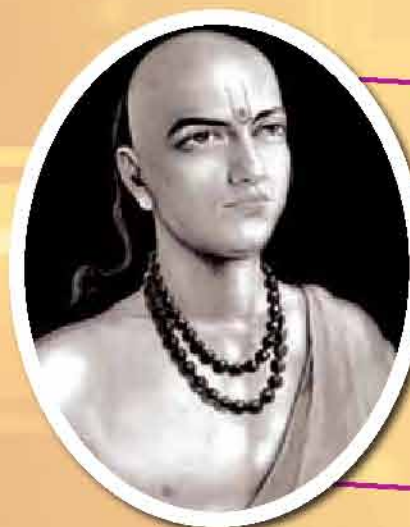

► BRAHMA GUPTA was born in 598 A.D in Pakistan. He gave four methods of multiplication. He gave the following formula, used in Geometric Progression series: a + ar + ar2 + ar3 +........... + arn-1 = (arn-1) ÷ (r − 1). He gave the formula: Area of a cyclic quadrilateral with side a, b, c, d= √(s -a)(s- b)(s -c)(s-d) where 2s = a + b + c + d

► ARYABHATA was born in 476 A.D in Kusumpur. He was the first person to say that Earth is spherical and it revolves around the sun. He gave the formula (a + b)2 = a2 + b2 + 2ab. He described the important fundamental principles of mathematics in 332 shlokas. Of the many concepts he introduced, were quadratic equations, Trigonometry, the areas of triangles, volumes of spheres as well as how to find out the square and cube root, which was an important step in the development of integral calculus.

► BHASKARACHARYA was born in a village of Mysore district. He was the first to give that any number divided by 0 gives infinity (∞). He has written a lot about zero, surds, permutation and combination. He gave formulae like sin(A ± B) = sinA.cosB ± cosA.sinB

► SHAKUNTALA DEVI, known as a human computer was born in 1939. In 1980, she gave the product of two, thirteen digit numbers within 28 seconds. Many countries have invited her to demonstrate her extraordinary talent. In Dallas she competed with a computer to see who gave the cube root of 188138517 faster, she won. At university of USA she was asked to give the 23rd root of 916748676920039158098660927585380162483 10668014430862240712651642793465704086709659327920576748080679002278301635492485238033574531693511190359657754734007568186883056208210161291328455648957801588067771. She answered in 50 seconds. The answer is 546372891. It took a UNIVAC 1108 computer, full one minute (10 seconds more) to confirm that she was right after it was fed with 13000 instructions!

We need to pride ourselves, honour this rich mathematical heritage and work towards enriching it. Let the occasion of the 125th birth anniversary of the genius of Srinivasa Ramanujan, a global mathematician to the core, inspire you to accept Maths as a favourite subject to not only improve on your overall percentage but to carry on the legacy of our great mathematicians.

► MAHAVIRA was a 9th century Indian mathematician from Gulbarga in Karnataka who asserted that the square root of a negative number did not exist. He gave the sum of a series whose terms are squares of an arithmetical progression and empirical rules for area and perimeter of an ellipse. He is highly respected among Indian Mathematicians, because of his establishment of terminology for concepts such as equilateral, and isosceles triangle; rhombus; circle and semicircle.

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► Among all shapes with the same area Circle has the shortest perimeter.

► In a group of 23 people, at least two have the same birthday with the probability greater than 1/2.

► Among all shapes with the same perimeter a Circle has the largest area.

► 12+3-4+5+67+8+9=100 and there exists at least one other representation of 100 with 9 digits in the right order and math operations in between.

► 12,345,678,987,654,321 is the product of 111,111,111 x 111,111,111. Notice the sequence of the numbers 1 to 9 and back to 1.

► If you add up the numbers 1-100 consecutively (1+2+3+4+5...) the total is 5050.

► 2 and 5 are the only primes that end in 2 or 5.

► 1729 is the Ramanujan number. When the great Indian mathematician was lying ill in the hospital, Dr. Hardy came to visit him. He said the taxi number 1729, in which he came is a boring number. Suddenly Ramanujan's face lit up & he said, it is not a boring number. It is the only number that is the sum of 2 cubes in two different ways ➤ 10^3 + 9^3 = 1729 & 12^3 + 1^3 = 1729.

While India has been blessed with some great mathematicians, there were many other Maths wizards of Greek origin, who defined the world of mathematics. The most famous of them are:

ARCHIMEDES – FATHER OF MATHEMATICS

Archimedes greatest contributions to mathematics were in the area of Geometry. He discovered the method to determine the area and volumes of circles, spheres and cones. He discovered the actual value of PI. Archimedes's investigation on Method of Exhaustion led way to current form of Integral Calculus which is now updated. Though it is outdated it is believed that he invented the method of Integral Calculus 2000 years before Newton and Leibniz. In the third century B.C, Archimedes noted that the ratio of circumference of a circle to its diameter is constant. The ratio is now called 'pi (Π)' (the 16th letter in the Greek alphabet series)

EUCLID – FATHER OF GEOMETRY

The Greek mathematician Euclid is well known for his most famous work 'The Elements' which is a collection of geometrical theorems and 'Euclidean theorem'. The Elements is divided into 13 books - the first 6 books deals with plane geometry; books 7 to 9 deals with number theory; book 10 deals with the theory of irrational numbers and books 11 to 13 deals with three-dimensional geometry. Euclid proved that it is impossible to find the 'largest prime number', because if you take the largest known prime number, add 1 to the product of all the primes up to and including it, you will get another prime number. Euclid's proof for this theorem is generally accepted as one of the 'classic' proofs because of its conciseness and clarity. Millions of prime numbers are known to exist, and more are being added by mathematicians and computer scientists.

PYTHAGORAS – FATHER OF NUMBERS

Greek philosopher and mathematician Pythagoras lived around the year 500 BC and is known for his Pythagoras theorem relating to the three sides of a right angle triangle: a2 + b2 = c2

[Compiled from various sources]