



Math 's Digest

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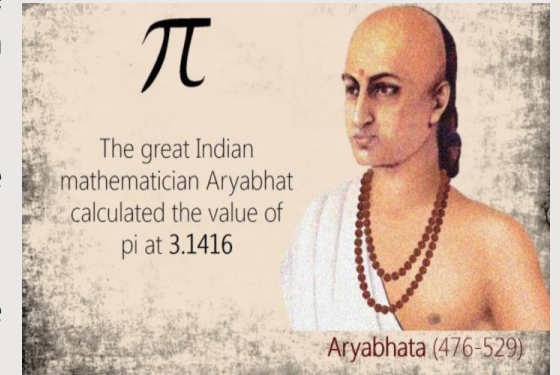
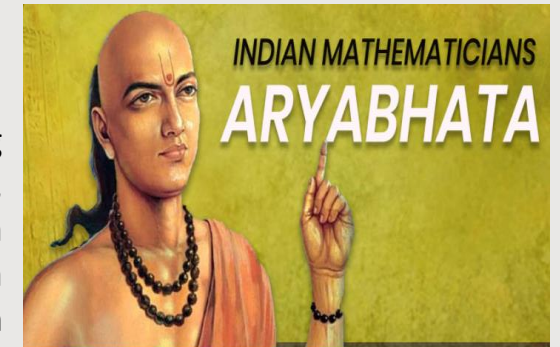


India is studying Mathematics and Astronomy from its far ancient time. But the growth of Mathematical and Astronomical sciences during the post-Christian era is the most glorious chapter in India. India gave birth a series of great mathematicians in this period. Here we will take the opportunity to introduce one by one....

Aryabhata(476-550 AD)

The great Indian Mathematician-Astronomer, Aryabhata was born in 476 AD at Pataliputra (near Patna) and at the young age 23 wrote his famous book on Astronomy, Aryabhatiya. He made the discovery that the earth rotates round its axis, but thousand year later Galileo(1564-1642) and Copernicus(1473–1543) have to suffer a lot only to uttering this truth and even they were in the position to stop their scientific study and research, but no such thing happened in Indian with Aryabhata. His other scientific contribution include: discovery of trigonometric sine, accurate evaluation of π , perfection of decimal system of numbers, evaluation of AP and GP series and square and cube root of numbers, accurate calculation of number of days in solar year ,discovery of the causes of solar and lunar eclipses, prediction of duration and angular extent of eclipse etc.— a long list indeed.

- He is the first person who gave the accurate value of π up to four decimal places which is 3.1416, no other one have done such achievement in that century.
- Aryabhata was the pioneer to introduce the concept of 'Bijganita' or Algebra. .
- Aryabhata is the first person who invented the modern method of finding square root, but this was started by the western mathematicians long after the Aryabhata.
- Aryabhata was also the first person who gave the general integral solution of linear Diophantine equation $ax+by=c$ in his Aryabhatiya, which was also first started by west long after him.
- He had been truly the first and the foremost mathematical genius, produced by the human race and a forerunner of Newton and other European mathematicians who were to be born more than thousand years later.





Beginners often wonder what is Armstrong number ?. It is of special interest to new programmers and those learning a new programming language because of the way the number behaves in a given number base. In numerical number theory, the Armstrong number definition is the number in any given number base, which forms the total of the same number, when each of its digits is raised to the power of the number of digits in the number. **An Armstrong number of three digits is an integer such that the sum of the cubes of its digits is equal to the number itself**

For example, using a simple number 153 and the decimal system, we see there are 3 digits in it. If we do a simple mathematical operation of raising each of its digits to the power of 3, and then totalling the sum obtained, we get 153. Thus if the number obtained totals to or equals the original number when each of the digits is raised to the power of the number of digits in the number and added to obtain a number, in any given number system, such a number is called an **Armstrong number**.

ARMSTRONG NUMBER LOGIC

To understand the logic of Armstrong numbers, one needs to remember that the Armstrong number property is true in any number system. Let us take the number 548834 with 6 digits and see if it satisfies the property of Armstrong numbers. Use the equation

$5^6 + 4^6 + 8^6 + 8^6 + 3^6 + 4^6 = ?$ Calculate the sum obtained by raising each of the digits to the power of six and adding together the sum of the terms obtained. The total is 548834 which is the original number itself. Thus 548834 is an Armstrong number since one gets the same number when one adds the individual terms of the digits in the number raised to the power of the number of digits in the number.

There is no use of Armstrong numbers. The only reason why we write such programs is to increase our programming skills as well as logical thinking which in turn increases our problem solving skills.

ARMSTRONG NUMBER

- 153 is an Armstrong number because
- $153 = 1^3 + 5^3 + 3^3$
- Some other Armstrong numbers are:
- 370, 371, 407

There are just four numbers (after 1) which are the sums of the cubes of their digits:

$$153 = 1^3 + 5^3 + 3^3$$

$$370 = 3^3 + 7^3 + 0^3$$

$$371 = 3^3 + 7^3 + 1^3$$

$$407 = 4^3 + 0^3 + 7^3$$



Question : If $1=3, 2=3, 3=5, 4=4, 5=4$ Then, $6=?$

- a) 3
- b) 9
- c) 10
- d) None of these

Previous Question & Answer

P, Q, R, S, T, U, V and W are sitting round the circle and are facing the centre: P is second to the right of T who is the neighbour of R and V. S is not the neighbour of P. V is the neighbour of U. Q is not between S and W. W is not between U and S. Which one is immediate right to the V if the position of S and U are interchanged ?

- a) P
- b) T
- c) U
- d) R
- e) None of these

Answer: T

