

# 9 - Nine

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Yesterday morning my associate Akash showed me the so called mysterious way 9 behaves. Of course there is no mystery to that, instead some beautiful mathematics which can be written using simple algebra. This small paper is against Akash, may he learn the lesson that **PHYSICS and MATHEMATICS THE TRUE NATURE OF REALITY.**

To be exact, the property which intrigued akash was the divisibility of any the sum of the numbers of any multiple of 9.

For example, 27 is a multiple of 9 as  $9 \times 3 = 27$ . add up the digits and we get 9, which is again divisible by 9. this is true for in fact every multiple of 9 (*the cheking is left as an exercise to the reader.*)

Dear Akash, this is not mysterious, rather it is very simple mathematics.

The reason this happens is, because,  $10 - 9$  is precisely equals to 1. Let us take a number  $abc$ , we can write that in expanded form as  $1000a + 100b + 10c + d$ . Now,

$$100a + 10b + c = (999 + 1)a + (99 + 1)b + (9 + 1)c + d = (999a + 99b + 9c) + a + b + c + d$$

let  $m = (999a + 99b + 9c)$  and  $n = a + b + c + d$ .  $m$  is always divisible by 9, as it is a multiple of 9. to confirm the divisibility of  $abcd$ , we only need to look at  $n$ , which is none other than the sum of the digits. hence, the trick works and it feels like a mystery. This principle can be extended to any number of digits. but, there is more than meets the eye, as Physics and Mathematics is the true reality of nature; which shall always be greater valued than pseudoscience.

*P.S. yesterday was 09/09/2023 :p*