

A Magic Number --- 153

- 1) Take an **arbitrary** 3-digit number, xyz , where $x \neq 0$
- 2) Calculate $x^3 + y^3 + z^3$ and denote the result as abc (if it has 3 digits) or $abcd$ (if it has 4 digits)
- 3) Then, calculate $a^3 + b^3 + c^3$ (or $a^3 + b^3 + c^3 + d^3$)
- 4) Then, take the result and do the same calculation again
- 5)
- 6) I assure you that sooner or later, you will encounter a number --- 153, and this number will stay there forever if you keep repeating the above calculation over and over again

For Example:

$$\begin{aligned} 861 &= 8^3 + 6^3 + 1^3 &= 729 \\ 729 &= 7^3 + 2^3 + 9^3 &= 1080 \\ 1080 &= 1^3 + 0^3 + 8^3 + 0^3 &= 513 \\ 513 &= 5^3 + 1^3 + 3^3 &= 153 \\ 153 &= 1^3 + 5^3 + 3^3 &= 153 \\ 153 &= 1^3 + 5^3 + 3^3 &= 153 \end{aligned}$$

.....

If you don't believe me, simply try another 3-digit number !