A new method of squaring and cubing

by Piyush Goel - Monday, October 28, 2013

https://gonitsora.com/new-method-squaring-cubing/

Below we demonstrate a simple method to find nth power of a number. Here we'll take examples to find Square & Cube of a number through Points marked on 2 faces & 3 faces of a Triangular Pyramid respectively.

Firstly, we are finding **cube** of a number.

1. We take 3 Pyramid faces and mark the Left Side with 1, 2, 3, 4,…….so on.
2. And on the Right Side we are taking the sum of points as shown in Figure-1.

By the Numbers of Points on The Three Faces of a "PYRAMID" in the above Figure-1

We shall prove N^3 =N (3N-2) + N (N-1) (N-2**).**

Now

In Figure-1

At Point	No Of Points
	1
	7
	13
	19
	25

No of Points (**1, 7, 13, 19, 25……)** , It is an **A.P Series**.

If we do 1^3 **=1 + (1*0*…..)**

2^3 = (1+7) + (2*1*0) =8

3^3 = (1+7+13) + (3*2*1) =21 + 6 = 27 and so on

N^3=(N/2)[2a+(N-1)*d] + C(N,3)

Putting the value a=1 & d=6, we get

N^3=(N/2)[2*1+(N-1)*6] + C(N,3)

=(N/2)[2+6N-6] + C(N,3)

=(N/2)[6N-4] + C(N,3)

=N(3N-2) + N(N-1)(N-2)

N^3 =N (3N-2) + N (N-1) (N-2) (Hence Proved)

Secondly, we are finding Square of a number.

1. We take 2 Pyramid faces and mark the Left Side with 1, 2, 3, 4,…….so on.
2. And on the Right Side we are taking the sum of points as shown in Figure-2.

By the Numbers of Points on The Two Faces of a “PYRAMID” in the above Figure-2 .

We shall prove N^2=N (2N-1) –N (N-1).

Now

In Figure-2

At Point	No Of Points
	1
	5
	9

13

17

No of Points (**1, 5, 9, 13, 17……)** , It is an **A.P Series**.

If we do

1^2 =1 - (1*0)

2^2 = (1+5) - (2*1) = 6 – 2 =4

3^2= (1+5+9) - (3*2) =15 - 6 = 9

4^2= (1+5+9+13) - (4*3) =28 - 12 = 16

N^2=(N/2)[2a+(N-1)*d] - C(N,2)

Putting the value a=1 & d=4, we get

N^2=(N/2)[2*1+(N-1)*4] - C(N,2)

=(N/2)[2+4N-4] - C(N,2)

=(N/2)[4N-2] - C(N,2)

=N(2N-1) - N(N-1)

Hence, N^2=N (2N-1) –N (N-1).
